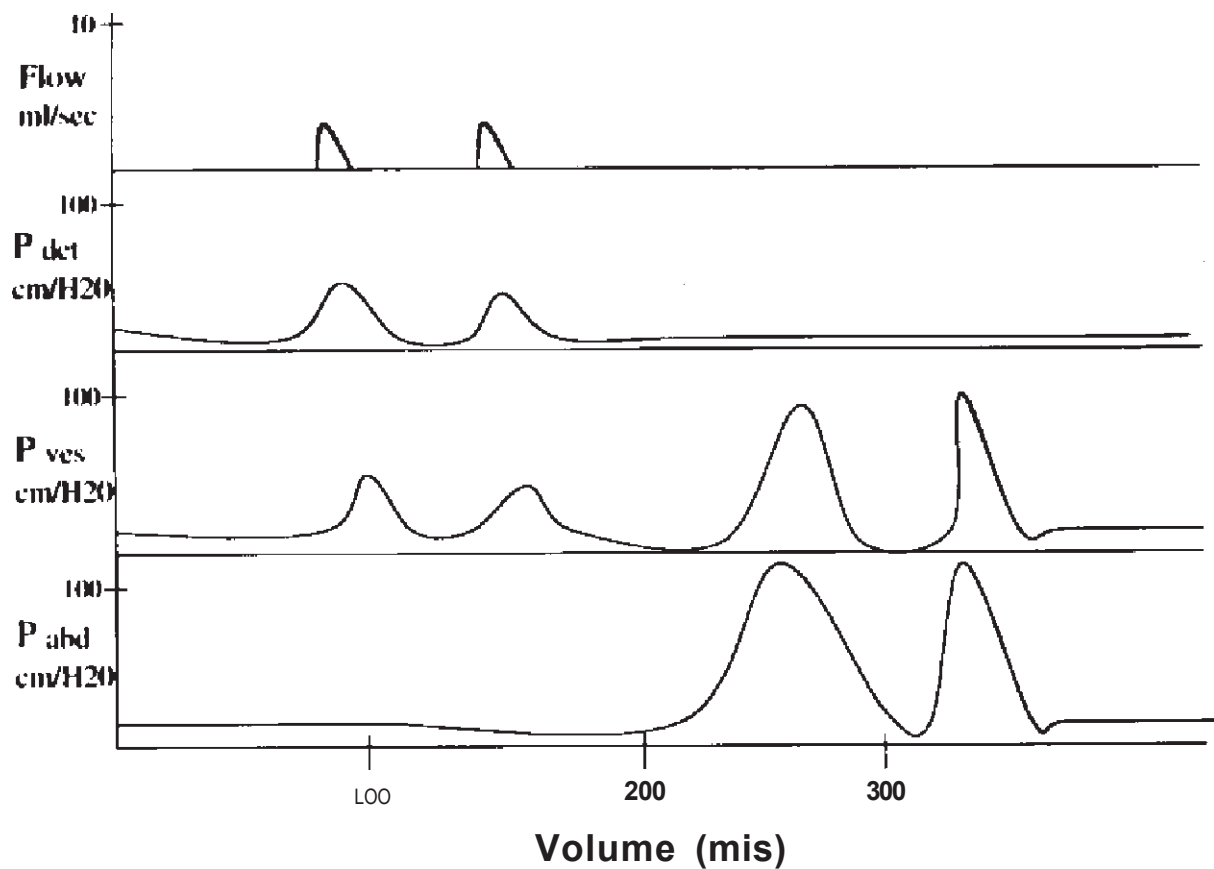


1. A 65-year-old man with LUTS and an AUA Symptom Score of 18 is treated with terazosin. Six months later, he develops hypertension. Which antihypertensive drug is contraindicated:
 - A. hydrochlorothiazide.
 - B. verapamil.
 - C. metoprolol.
 - D. losartan.
 - E. enalapril.
2. A very tall 24-year-old man with primary infertility has slight gynecomastia and disproportionately long arms. He has a normal male pattern of hair distribution in his pubic area and axillae. His testes are 3 ml and firm bilaterally. His sperm concentration is 0.5 million/ml. Genetic analysis will most likely show:
 - A. microdeletions of the Y chromosome.
 - B. 46, XX karyotype.
 - C. 47, XXY karyotype.
 - D. 50% 46, XY; 50% 47, XXY karyotype.
 - E. 45, XO karyotype.
3. A 64-year-old man with clinical T1c Gleason 6 prostate cancer and PSA of 5.0 ng/ml desires active surveillance. He has a microscopic focus of cancer in one of 12 biopsy cores. His prostate gland size is estimated to be 50 ml. The next step is:
 - A. repeat biopsy only for rising PSA.
 - B. repeat biopsy within one year.
 - C. antibiotics, repeat PSA.
 - D. treat prostate cancer.
 - E. hormonal ablation.
4. The most frequent long-term complication of CIC in men with spinal cord injury is:
 - A. VUR reflux.
 - B. squamous metaplasia.
 - C. bladder calculi.
 - D. chronic pyelonephritis.
 - E. urethral stricture.
5. A 47-year-old man underwent a vasectomy 16 years ago at the time of a hernia repair and recently married a 33-year-old woman who has never attempted to become pregnant. He has two grown children and now desires more children. Antisperm antibody titers are positive. The factor that portends a poor outcome after vasectomy reversal is:
 - A. partner age > 30 years.
 - B. previous inguinal surgery.
 - C. partner has never been pregnant.
 - D. presence of antisperm antibodies.
 - E. long interval since vasectomy.

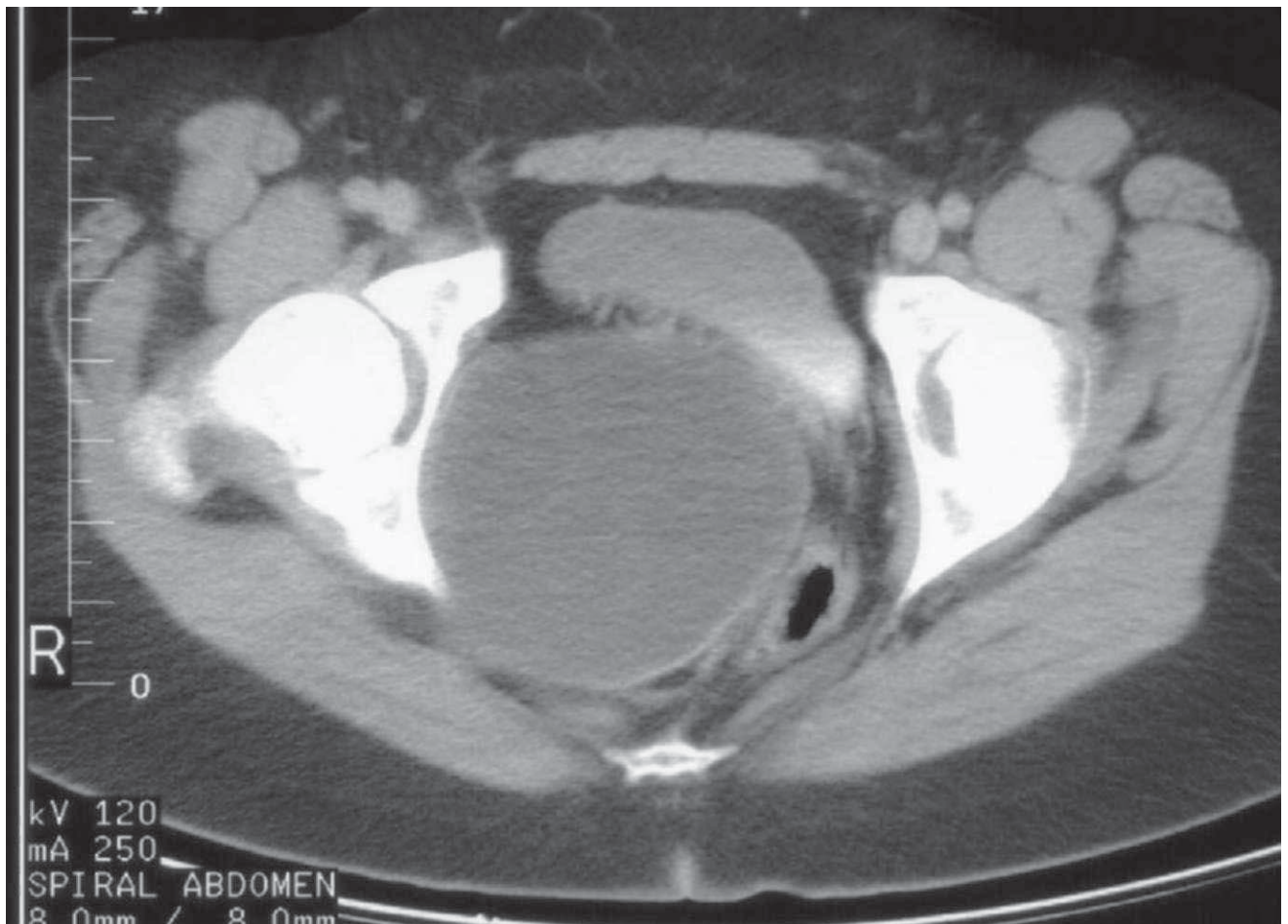
6. A 35-year-old woman with T8 paraplegia underwent augmentation ileocystoplasty for urinary incontinence unresponsive to CIC and antimuscarinics. Post-operatively, she has persistent incontinence unresponsive to antimuscarinics. Her urodynamic evaluation is demonstrated in the exhibit. The next step is:
- A. creating an ileovesicostomy.
 - B. continent catheterizable urinary diversion.
 - C. inserting an additional bowel patch into the cystoplasty.
 - D. placing a pubovaginal sling.
 - E. bladder neck closure and appendicovesicostomy.



7. A 67-year-old man has an AUA Symptom Score of 25 and a bother score of 5. He has no history of urinary retention, infections or stones, and has normal renal function. DRE reveals a 25 g benign prostate. The next step is:
- A. observation.
 - B. alpha-blocker.
 - C. 5-alpha-reductase inhibitor.
 - D. alpha-blocker and 5-alpha-reductase inhibitor.
 - E. photovaporization of the prostate.
8. A 32-year-old man has azoospermia and semen volume of 3.1 ml. Both testes are 5.0 cm in longitudinal axis, and FSH is 3.8 mIU/ml (normal 2 - 12 mIU/ml). The next step is:
- A. scrotal ultrasound.
 - B. clomiphene citrate.
 - C. testis biopsy.
 - D. scrotal exploration for microsurgical reconstruction.
 - E. percutaneous epididymal sperm aspiration.
9. A 29-year-old G2P2 woman with episodic hypertension is 28 weeks pregnant. She is now found to have a 4 cm left adrenal pheochromocytoma. The next step is alpha-blockade with phenoxybenzamine and:
- A. immediate laparoscopic adrenalectomy.
 - B. immediate open adrenalectomy.
 - C. elective adrenalectomy following term vaginal delivery.
 - D. adrenalectomy at time of caesarean section after fetal maturity.
 - E. adrenalectomy at time of vaginal delivery after fetal maturity.
10. A 54-year-old man with a rising PSA after radiation therapy elects androgen deprivation therapy. His PSA is 8.4 ng/ml, and his bone scan is negative. Bone mineral density will be best preserved with:
- A. GnRH agonist.
 - B. GnRH antagonist.
 - C. intermittent GnRH agonist.
 - D. bilateral orchiectomy with calcium and Vitamin D.
 - E. diethylstilbestrol.
11. A 35-year-old man is a heterozygous carrier of the delta-F508 mutation. Prior to testing his wife, his chance of having a child with cystic fibrosis is:
- A. 1 in 2.
 - B. 1 in 4.
 - C. 1 in 25.
 - D. 1 in 100.
 - E. 1 in 625.

12. A CT scan demonstrates a new 4 cm nodule in the left adrenal gland of a 58-year-old man who underwent a right radical nephrectomy for RCC eight years previously. He has mild hypertension that is well-controlled medically and is otherwise healthy. An MRI scan demonstrates the adrenal nodule to be isointense with the liver on T2-weighted images. The next step is:
- A. clonidine suppression test.
 - B. MIBG scan.
 - C. needle biopsy.
 - D. adrenalectomy.
 - E. repeat CT scan in six months.
13. A 65-year-old man on warfarin develops urinary retention secondary to BPH. He has failed treatment with tamsulosin. His cardiologist recommends that warfarin not be discontinued. The next step is:
- A. TUNA.
 - B. finasteride.
 - C. laser prostatectomy.
 - D. TUIP.
 - E. transurethral electrovaporization of the prostate.
14. A 27-year-old woman with irritable bowel syndrome passes a 4 mm calcium phosphate calculus. 24-hour urine collection reveals low urinary citrate. She refuses pharmacologic therapy. Treatment includes oral hydration and:
- A. limit tea.
 - B. drink milk.
 - C. drink lemonade.
 - D. limit animal protein.
 - E. limit carbonated water.
15. A 62-year-old man with Gleason 6, T1c adenocarcinoma of the prostate opts for radical prostatectomy. PSA is 15 ng/ml, and bone scan reveals two areas of intense abnormality in the right hemi-pelvis. Plain films are normal. The next step is:
- A. Prostatecint scan.
 - B. bone biopsy.
 - C. MRI scan of pelvis.
 - D. GnRH agonist.
 - E. radical prostatectomy.

16. A 27-year-old woman has passed multiple calcium phosphate stones. The pH of an early morning urine is 6.5. Serum electrolytes reveal Na 140 mEq/l, K 3.4 mEq/l, Cl 112 mEq/l, and CO₂ 20 mEq/l. The next step is:
- A. serum aldosterone.
 - B. serum renin.
 - C. serum parathormone.
 - D. 24-hour urine citrate.
 - E. 24-hour urine potassium.
17. An 18-year-old girl has primary amenorrhea and recurrent UTIs. Her pelvic ultrasound shows a large cystic lesion. CT imaging is shown in exhibit 1. The most frequent associated condition is:
- A. renal agenesis.
 - B. primary megaureter.
 - C. ectopic ureter.
 - D. multicystic dysplastic kidney.
 - E. UPJ obstruction.

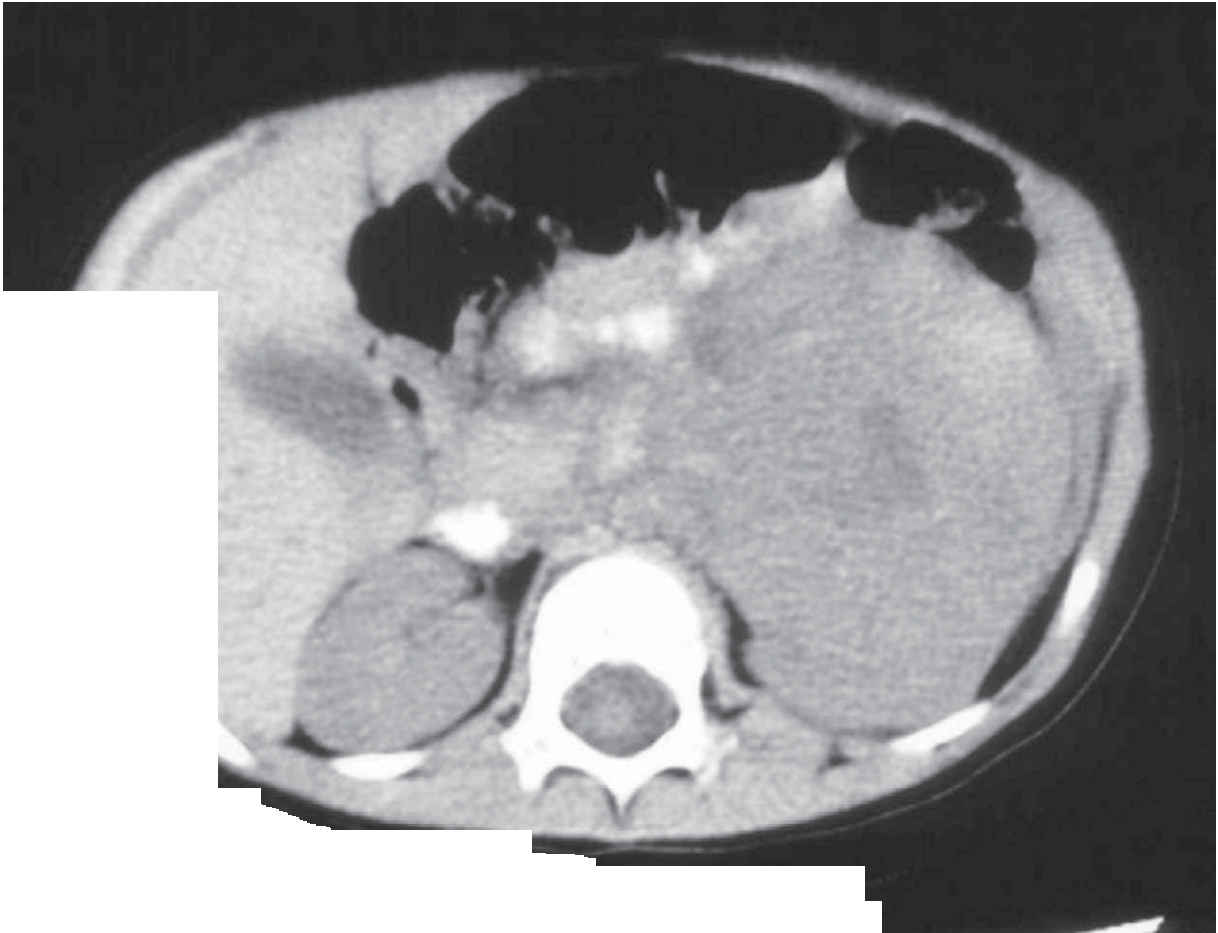


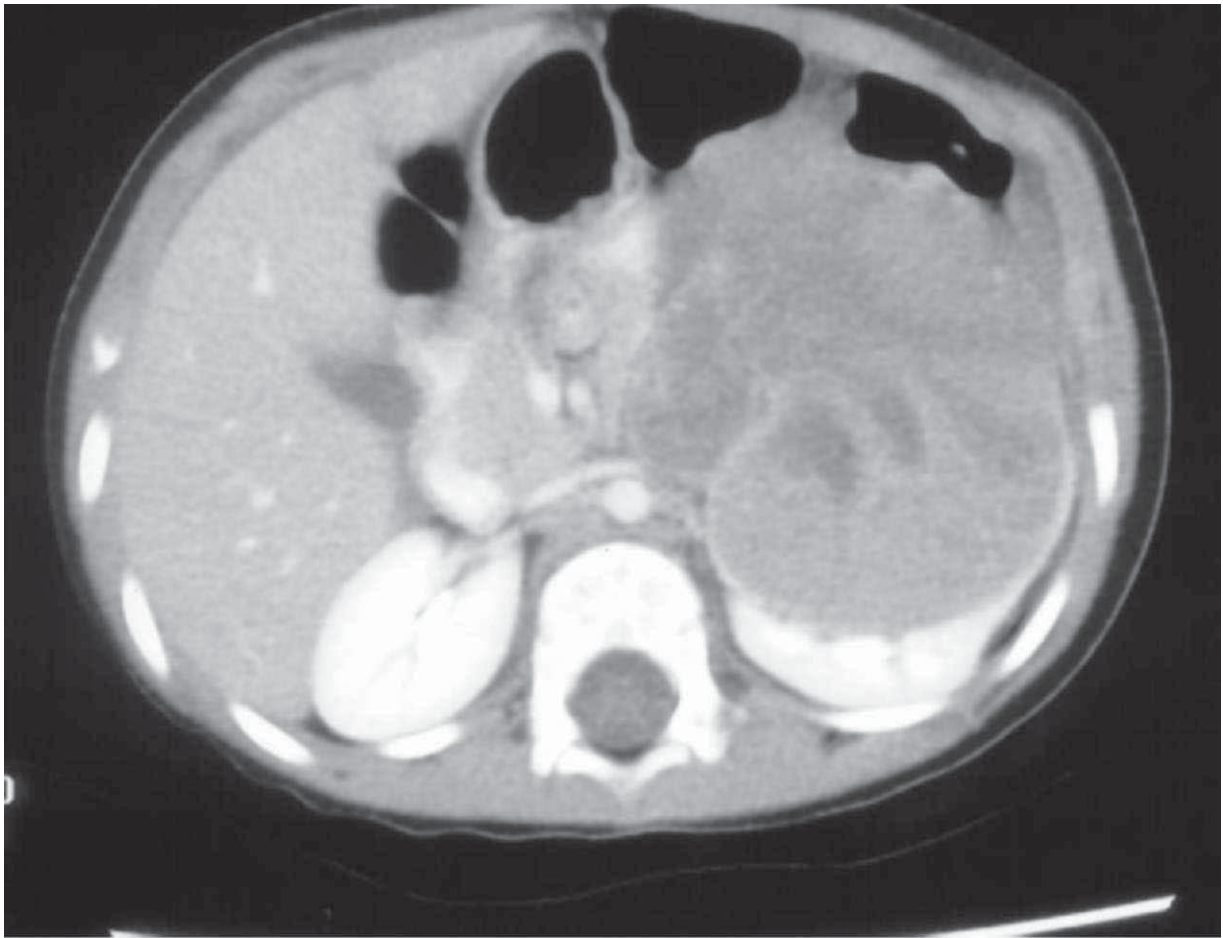
18. A 56-year-old man with a palpable nodule on DRE and a PSA of 15.2 ng/ml has Gleason 8 prostate cancer. The administration of eight months of neoadjuvant hormone ablation therapy prior to radical retropubic prostatectomy has been shown to result in:
- A. prolonged biochemical-free survival.
 - B. prolonged overall survival.
 - C. decreased local recurrence.
 - D. decreased positive margins.
 - E. decreased seminal vesicle involvement.
19. A 26-year-old with a spinal cord injury undergoes pressure flow urodynamics. During filling, he complains of severe headache, diaphoresis, and facial flushing. The spinal cord lesion most likely responsible for this phenomenon is:
- A. complete and located below S1.
 - B. complete or incomplete and located between L1 and L5.
 - C. incomplete and located between C1 and T6.
 - D. incomplete and located between T6 and L5.
 - E. complete and located above T6.
20. Currently manufactured extracorporeal Shockwave lithotriptors are associated with less patient discomfort due to increased aperture size of the shock wave generation/focusing system. This design change also produces a:
- A. smaller focal volume.
 - B. lower focal pressure.
 - C. larger focal volume.
 - D. higher focal pressure.
 - E. shorter rise time.
21. The most frequent post-operative complication of partial nephrectomy is:
- A. bleeding.
 - B. urinary fistula.
 - C. renal failure.
 - D. UTI.
 - E. renal infarction.
22. A 38-year-old woman with a T6 spinal cord injury is treated with an indwelling catheter and oxybutynin for five years. She has severe urinary incontinence around the catheter and a patulous urethra at cystoscopy. Videourodynamics performed with a urethral catheter balloon occluding the urethra shows detrusor overactivity, a bladder capacity of 75 ml, and bilateral grade IV VUR. The next steps are:
- A. antimuscarinics and suprapubic tube placement.
 - B. antimuscarinics, urethral sling placement, and CIC.
 - C. antimuscarinics, collagen injection, and CIC.
 - D. urethral sling placement, augmentation cystoplasty, and CIC.
 - E. ileovesicostomy.

23. A 32-year-old man with inflammatory bowel disease has passed two calcium oxalate stones. 24-hour urine collection reveals elevated oxalate. The treatment is:
- A. restrict oxalate.
 - B. restrict sodium.
 - C. calcium.
 - D. thiazides.
 - E. potassium citrate.
24. A 64-year-old man undergoes 12 weekly bladder instillations of BCG after TURBT of a high-grade stage T1(A) TCC. Six weeks after receiving his last treatment, he undergoes a cystoscopy and CT urogram which are normal. However, a voided cytology shows highly atypical cells suspicious for malignancy. The next step is:
- A. bilateral ureteral catheterization and barbotage for cytology.
 - B. cold cup biopsy of the prostatic urethra.
 - C. brush biopsy of both upper collecting systems.
 - D. repeat cystoscopy with bladder biopsy and retrograde pyelography.
 - E. administration of monthly BCG instillations for one year.
25. Aldosterone secretion is stimulated by:
- A. hyperkalemia and hyponatremia.
 - B. hyperkalemia and hypernatremia.
 - C. hypokalemia and hyponatremia.
 - D. hypokalemia and hypernatremia.
 - E. ACTH.
26. For patients with a 1 cm proximal ureteral stone, placement of an internal stent at the time of SWL will result in:
- A. a higher stone free rate.
 - B. a lower complication rate.
 - C. less hematuria.
 - D. increased irritative voiding symptoms.
 - E. reduced analgesic requirements.
27. A 42-year-old woman undergoes TURBT and random bladder biopsies for a solitary tumor at the dome of the bladder. Pathology reveals a high-grade T2 TCC at the dome and CIS on the left lateral wall. Metastatic work-up is negative. The next step is:
- A. intravesical BCG therapy.
 - B. intravesical BCG therapy followed by repeat TURBT.
 - C. partial cystectomy.
 - D. partial cystectomy followed by intravesical BCG.
 - E. radical cystectomy.

A two-year-old girl has abdominal tenderness 24 hours after minor flank trauma. Her initial hematocrit was 33% and decreased to 28%. She remains hemodynamically stable. Her urine is clear. Images from an abdominal CT scan without and with contrast are shown in exhibits 1 and 2. Chest x-ray is normal. The best definitive management is:

- A. observation.
- B. transfusion of packed RBCs.
- C. renal arteriography.
- D. flank exploration and repair.
- E. nephrectomy.





29. A 42-year-old man has severe right flank pain and microscopic hematuria. CT scan demonstrates a 5 mm distal ureteral calculus and forniceal extravasation. Following adequate pain control, the next step is:
- A. SWL.
 - B. ureteral stent.
 - C. ureteroscopy.
 - D. observation.
 - E. percutaneous nephrostomy.
30. A 63-year-old man who underwent radical cystectomy and ileal neobladder diversion for TCC of the bladder two years earlier has a positive NMP22 urine test and negative voided urine cytology. CT urogram and cystoscopy are both normal. The next step is:
- A. surveillance.
 - B. urethral washings for cytology.
 - C. random urethral biopsies.
 - D. bilateral ureteral washings for cytology.
 - E. bilateral ureteroscopy.
31. Non-adrenergic, non-cholinergic contraction of detrusor smooth muscle is mediated primarily by:
- A. nitric oxide.
 - B. vasoactive intestinal polypeptide (VIP).
 - C. adenosine triphosphate (ATP).
 - D. cyclic guanosine monophosphate (cGMP).
 - E. enkephalins.
32. A 47-year-old man with a 2.2 x 1.4 cm branched calculus undergoes PCNL through a single supracostal access. Operative time is three hours, and estimated blood loss is 400 cc. A renal pelvic perforation occurs toward the end of the procedure confirmed by mild extravasation of contrast. No residual stones are visualized fluoroscopically. The factor that precludes "tubeless" PCNL is:
- A. size of the stone.
 - B. length of the procedure.
 - C. site of percutaneous access.
 - D. perforation of the renal pelvis.
 - E. amount of blood loss.

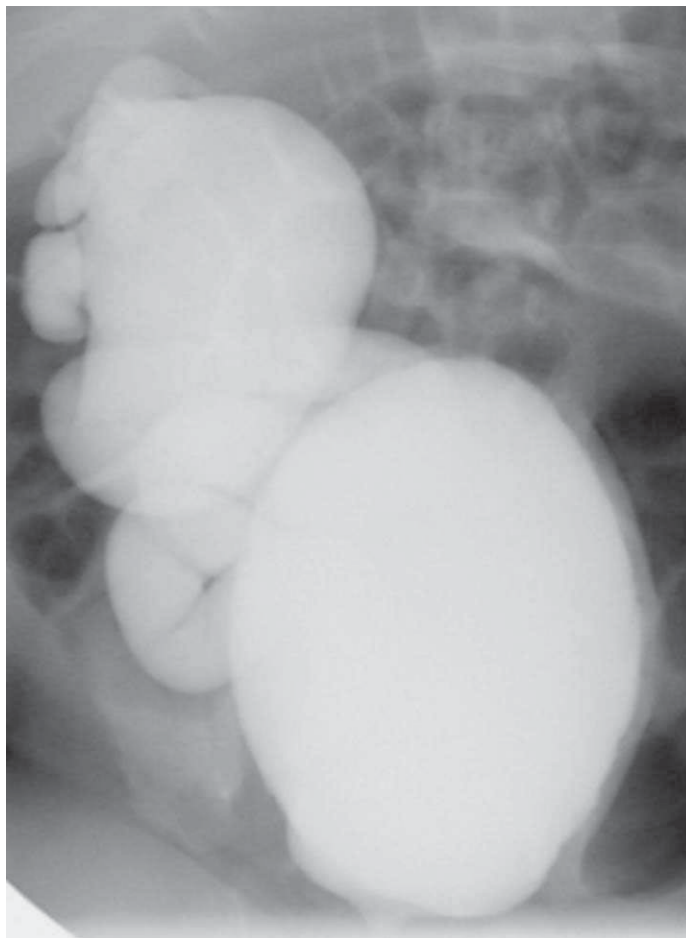
33. A 45-year-old man undergoes a partial cystectomy for urothelial cancer at the dome of the bladder. Post-operative pathology reveals pT3a disease with positive surgical margins within the perivesical fat. Post-operative CT scan is negative. The next step is:
- A. surveillance.
 - B. intravesical BCG followed by surveillance.
 - C. bladder-sparing chemoradiation.
 - D. radical cystoprostatectomy.
 - E. chemotherapy followed by radical cystoprostatectomy.
34. A thirteen-year-old boy with testicular pain has a scrotal ultrasound shown in the exhibit. Tumor markers are normal. The next step is:
- A. serial self-examinations.
 - B. testicular biopsy.
 - C. antibiotic therapy.
 - D. scrotal exploration.
 - E. radical orchiectomy.



35. A 48-year-old-man with prior stones has a mildly symptomatic 3 mm ureteral stone with hydronephrosis confirmed by CT scan one month ago. The next step is:
- A. CT scan within one week.
 - B. CT scan in one month.
 - C. stent placement.
 - D. ureteroscopy and stone extraction.
 - E. SWL.
36. A 48-year-old woman with diffuse, biopsy-proven CIS receives an initial six week induction course of BCG that is poorly tolerated. She undergoes repeat TURBT at three months, again revealing extensive CIS. The best next step is:
- A. radical cystectomy.
 - B. perioperative mitomycin C
 - C. another induction course of full strength BCG.
 - D. induction mitomycin C with maintenance.
 - E. another induction course of 1/4 strength BCG.
37. A patient with bladder outlet obstruction secondary to BPH has an elevated serum creatinine, bilateral ureteral dilation, and a residual urine of 1200 ml. There is grade III VUR on videourodynamics. The renal function abnormalities and ureteral changes are related to:
- A. compression of the ureter at the ureterovesical junction.
 - B. the development of high grade VUR.
 - C. increased urethral resistance.
 - D. high voiding pressure.
 - E. sustained high filling pressure.
38. On the first post-operative day after PCNL, an antegrade nephrostogram shows contrast filling the right colon as well as the right kidney. The next step is:
- A. remove nephrostomy tube.
 - B. withdraw nephrostomy tube into colon and place internal ureteral stent.
 - C. replace nephrostomy tube with CT-guidance.
 - D. percutaneous retroperitoneal drain.
 - E. colostomy.
39. Following TURBT for papillary TCC of the bladder, peri-operative instillation of mitomycin C:
- A. is unnecessary for patients with a small, solitary, low grade tumor.
 - B. is most effective in acidic urine.
 - C. must be given within 24 hours of the resection.
 - D. must be followed by an induction course of intravesical therapy.
 - E. should be delayed for 24 hours if an extraperitoneal perforation occurs.

40. After six months of therapy with an LH-RH analogue, a man with Stage D adenocarcinoma of the prostate has a serum testosterone of 50 ng/dl. The most likely explanation for this incomplete androgen suppression is:
- A. increased Leydig cell sensitivity to minute amounts of LH.
 - B. reflex increase in ACTH.
 - C. increased adrenal cortical sensitivity to ACTH.
 - D. failure to suppress dehydroepiandrosterone.
 - E. peripheral conversion of estrogen into testosterone.
41. A 22-year-old woman has a blood pressure of 160/110 mm Hg. Her serum potassium is 2.4 mEq/l while her other serum electrolytes are normal. CT scan demonstrates a 2 cm peripheral renal mass with a normal contralateral kidney. Plasma renin activity is 6.4 ng/ml/hr (normal is 0.5-1.6). The next step is:
- A. renal angiography.
 - B. renal venous renin sampling.
 - C. captopril renogram.
 - D. radical nephrectomy.
 - E. partial nephrectomy.
42. A seven-year-old boy with a myelomeningocele has failed antimuscarinic therapy and CIC for a non-compliant neurogenic bladder. He undergoes a mechanical bowel prep and receives preoperative antibiotics. Forty-five minutes after starting an enterocystoplasty, he develops acute, severe hypotension. The most likely cause is:
- A. dehydration secondary to bowel prep.
 - B. sepsis.
 - C. latex allergy.
 - D. autonomic dysreflexia.
 - E. unrecognized iliac venous compression.
43. A 28-year-old man has the following hormone parameters: total testosterone 840 ng/d (normal 300-1000 ng/dl), prolactin 6 ng/ml (normal 1-15 ng/ml), LH 0.2 mIU/ml (normal 3-18 mIU/ml), FSH 0.4 mIU/ml (normal 1-15 mIU/ml). He is well-virilized but has testes that are 10 ml in volume bilaterally. The most likely diagnosis is:
- A. Kallmann syndrome.
 - B. Klinefelter syndrome.
 - C. Kartagener syndrome.
 - D. exogenous testosterone use.
 - E. bioinactive LH syndrome.

44. A 49-year-old man with diabetes and hypertension had an 8 cm solid renal mass. Preoperative cardiac angiography reveals a 90% occlusion of the right coronary artery and he undergoes bare metal stenting across the blockage. The minimum delay before surgery is:
- A. 2 weeks.
 - B. 6 weeks.
 - C. 3 months.
 - D. 6 months.
 - E. 12 months.
45. A three-year-old girl has recurrent febrile UTIs in spite of prophylactic antibiotics. Her VCUG is shown in the exhibit. The next step is:
- A. voiding diary.
 - B. creatinine clearance.
 - C. renal scan.
 - D. urodynamics.
 - E. MR urogram.

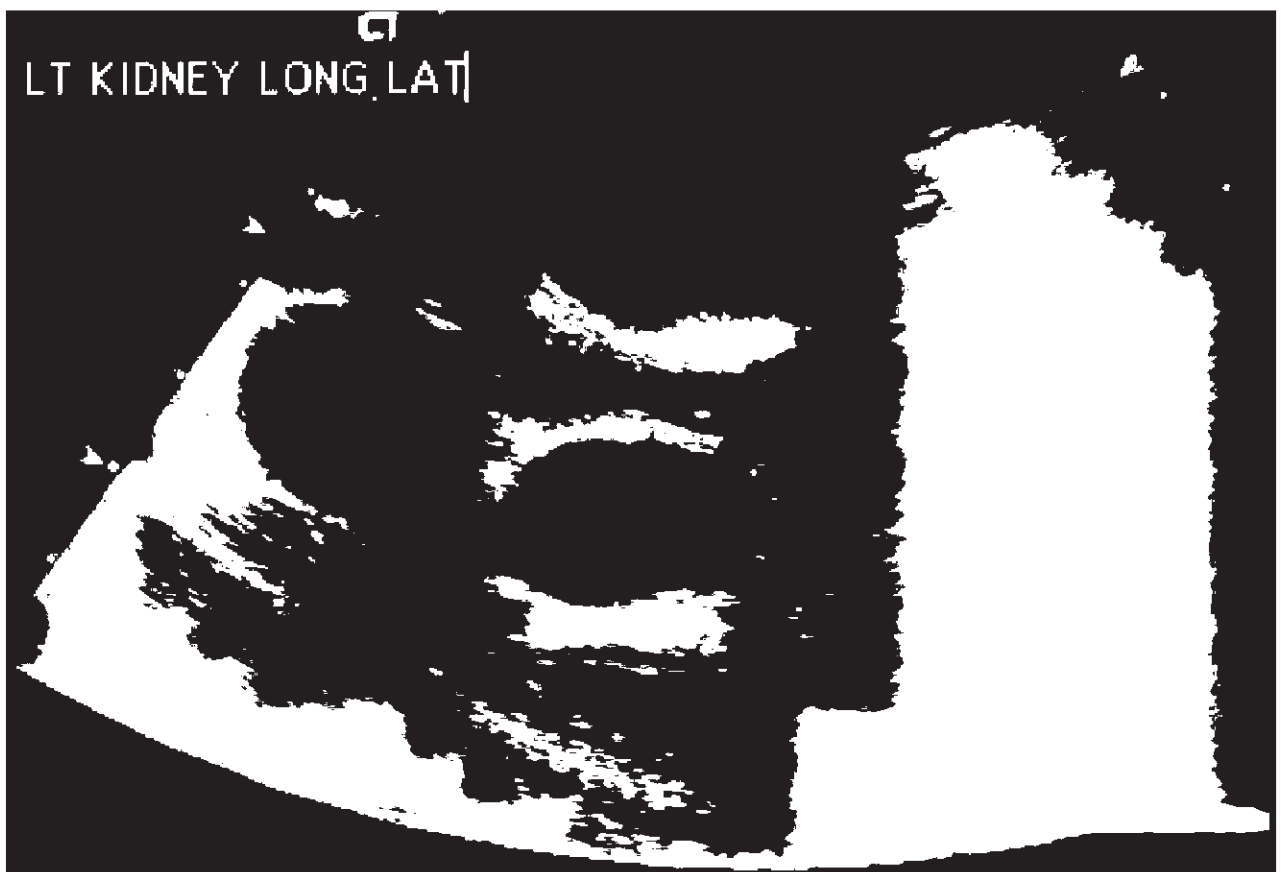
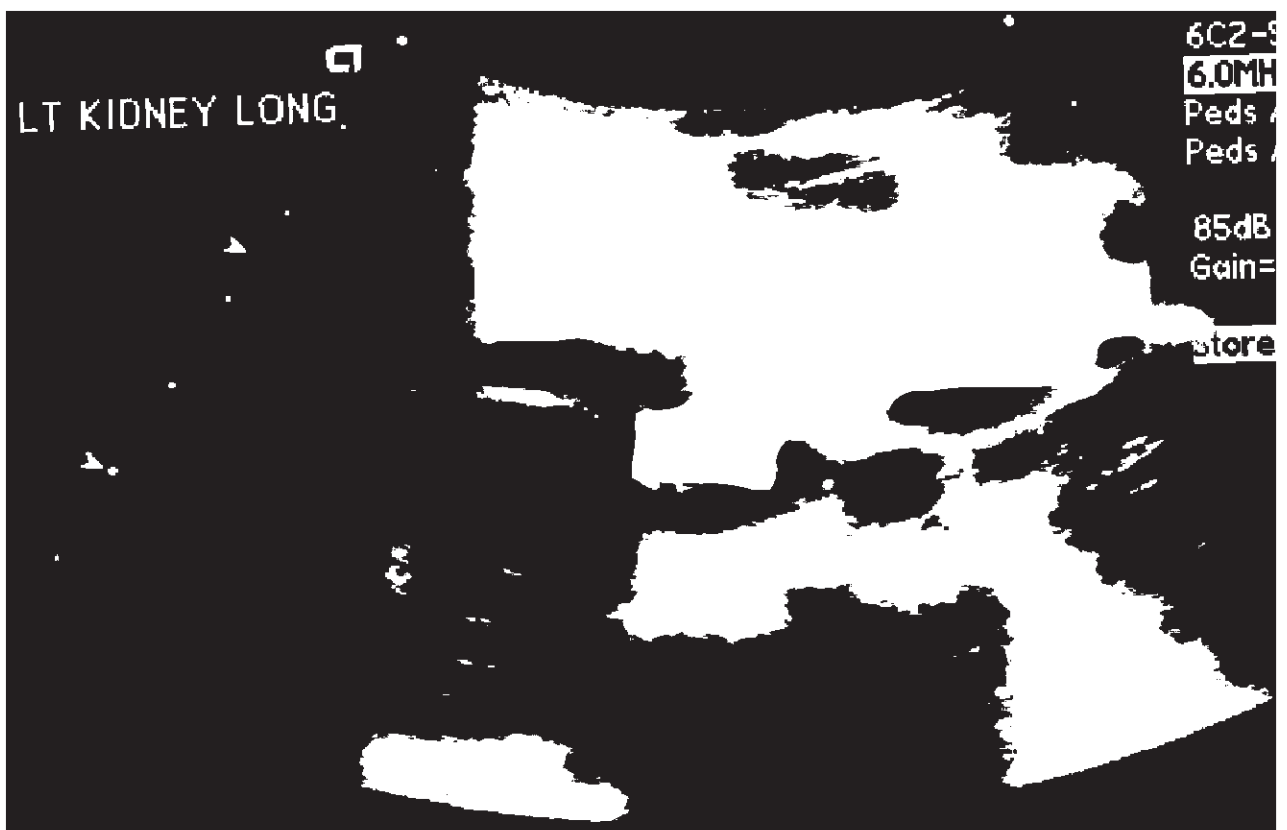


46. The primary storage site for spermatozoa in the human is the:
- A. ampulla of the vas.
 - B. bulbourethral gland.
 - C. caput epididymis.
 - D. ejaculatory duct.
 - E. seminal vesicle.
47. The yearly whole-body radiation exposure for a Urologist should be no greater than:
- A. 5 rad.
 - B. 5 rem.
 - C. 5 gray.
 - D. 5 sievert.
 - E. 5 becquerel.
48. A 17-year-old girl underwent ileocystoplasty for neurogenic bladder four years ago. During an emergency cesarean section for dystocia, the vascular pedicle to the cystoplasty segment is divided. The next step is:
- A. revascularization of the pedicle.
 - B. excise ileal patch; immediate ileal augmentation.
 - C. excise ileal patch; delayed sigmoid augmentation.
 - D. place suprapubic tube and drain.
 - E. observation with follow-up urodynamics.
49. The primary stimulus for ureteral peristalsis is:
- A. stimulation of alpha-adrenergic receptors.
 - B. stimulation of beta-adrenergic receptors.
 - C. a bolus of urine.
 - D. increased intravesical pressure.
 - E. stimulation of cholinergic receptors.
50. A 38-year-old obese man desires a biological child. Semen analysis shows a volume of 2.0 ml, 5.2 million sperm/ml and 40% motility. Serum testosterone is 312 ng/dl (normal 300 - 1000 ng/dl) and estradiol is 68 pg/ml (normal < 50 pg/ml). The next step is administration of:
- A. estrogen.
 - B. anastrozole.
 - C. cabergoline.
 - D. testosterone.
 - E. clomiphene citrate.

51. A neonatal ultrasound is shown in exhibits 1 and 2. The next step is:

- A. renal ultrasound of parents.
- B. hepatic ultrasound.
- C. spinal ultrasound.
- D. VCUG.
- E. echocardiography and aortic ultrasound.

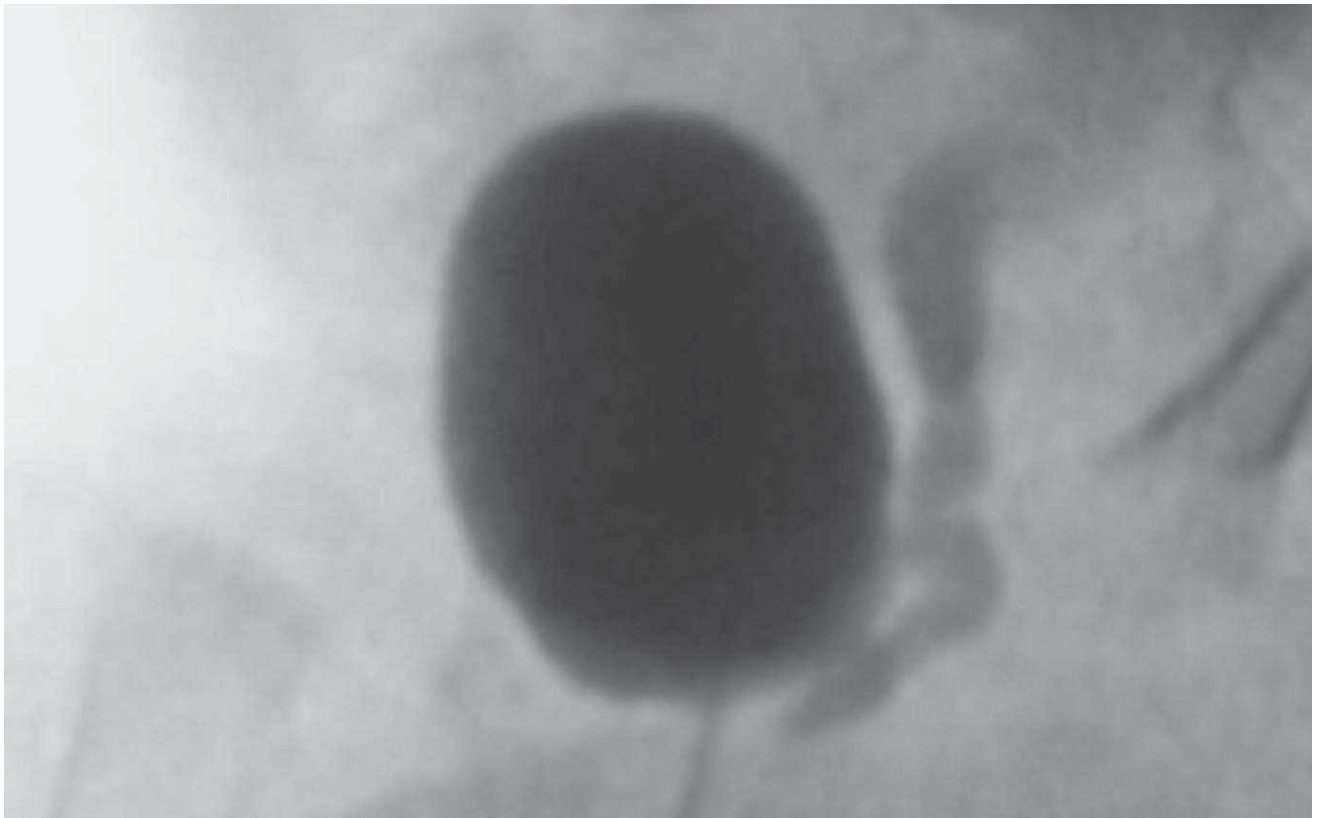


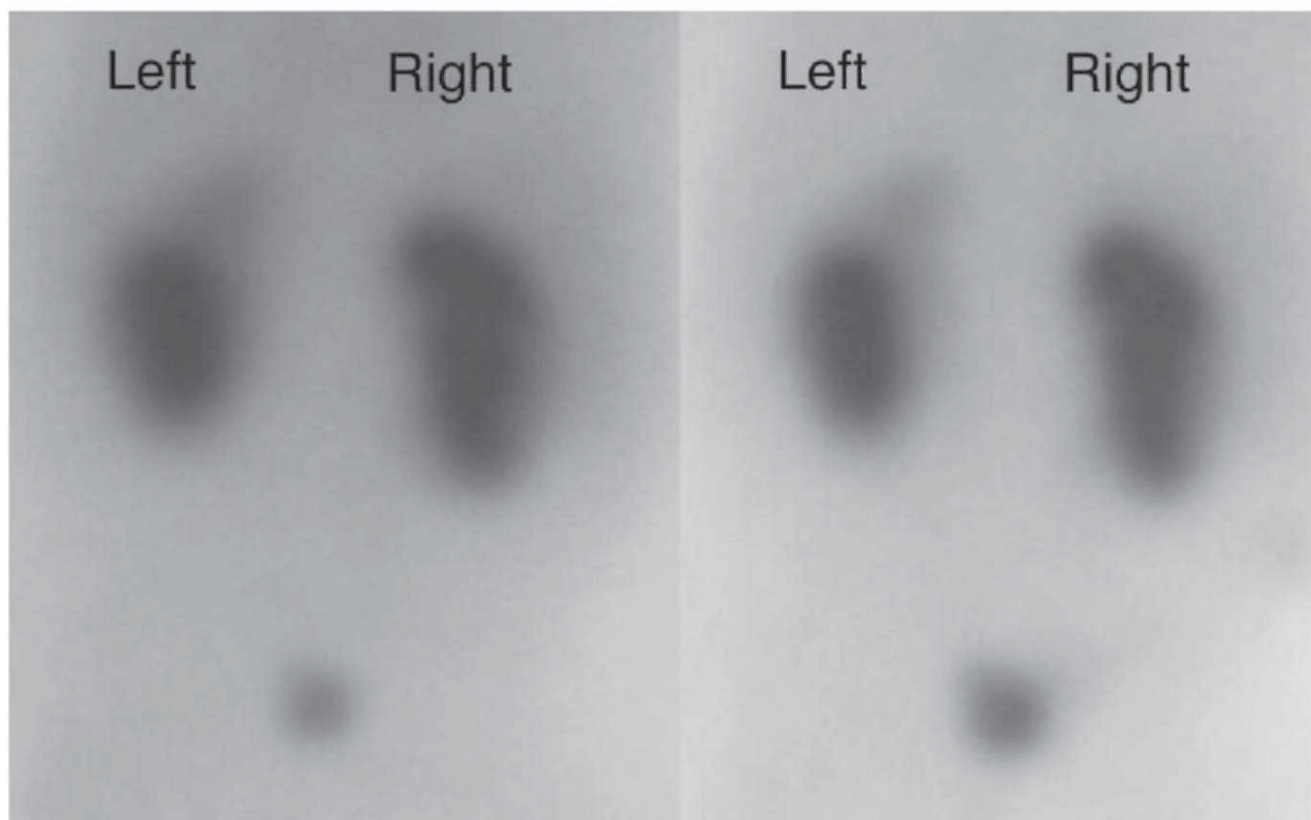
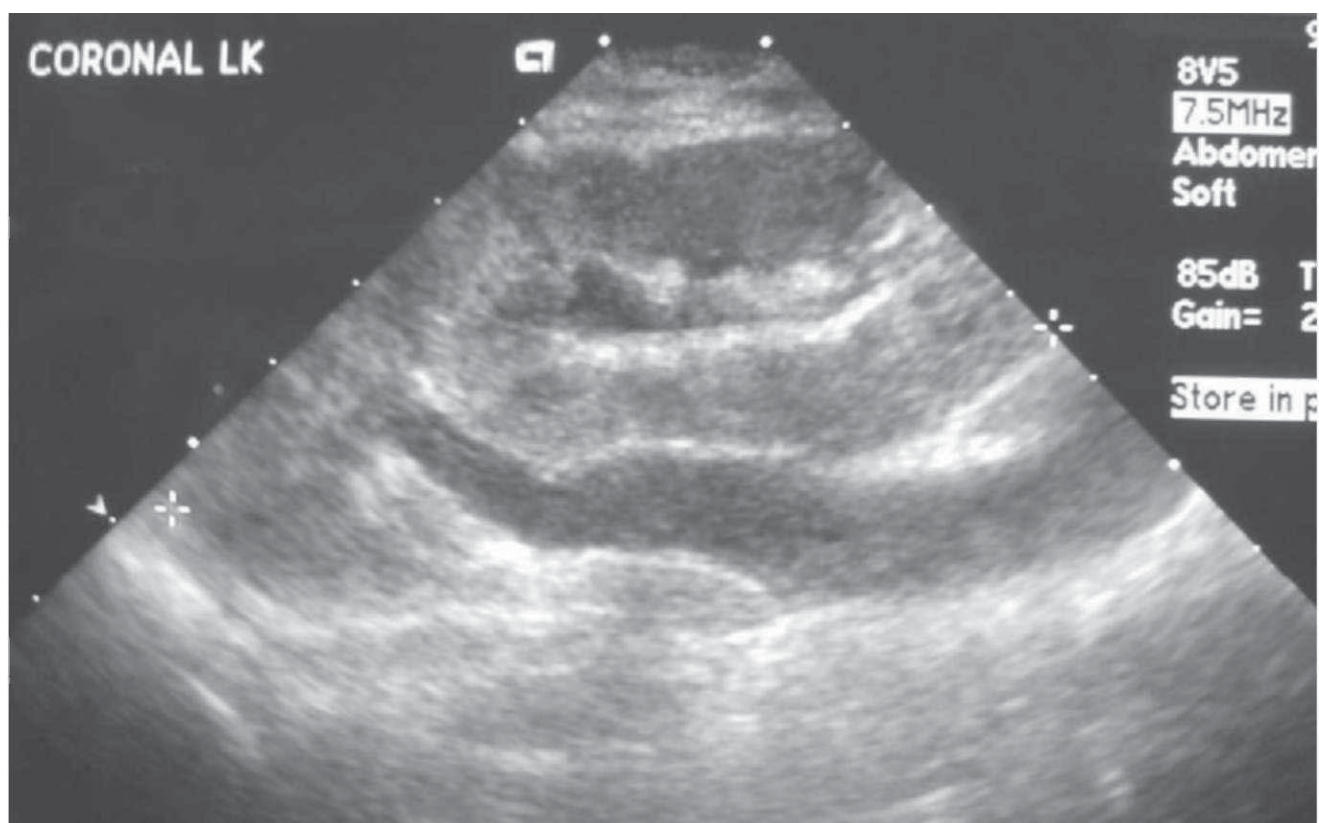


52. A 62-year-old man develops urinary incontinence three months after a CVA. Urodynamic evaluation will most probably demonstrate detrusor overactivity and:
- smooth sphincter synergia, striated sphincter dyssynergia.
 - smooth sphincter synergia, striated sphincter synergia.
 - smooth sphincter dyssynergia, striated sphincter synergia.
 - smooth sphincter incompetence, striated sphincter synergia.
 - smooth sphincter incompetence, striated sphincter incompetence.
53. A 52-year-old man with depression has a low libido. Physical exam reveals obesity but is otherwise normal. Morning serum testosterone is 290 ng/dl (normal > 300 ng/dl) sex hormone binding globulin is 11 nmol/l (normal 10 - 70 nmol/l) albumin is 4.9 g/dl (normal 3.5 - 5.2 g/dl) prolactin is 9 ng/ml (normal < 19 ng/ml) calculated free testosterone is 2.85% and calculated bioavailable testosterone is 220 ng/dl (75.8%) The next step is:
- serum LH and FSH assay.
 - morning urinary **Cortisol** assay.
 - cranial MRI scan.
 - administer topical testosterone.
 - psychiatric referral.
54. A nine-year-old girl has sepsis and vomiting two years after bilateral ureteroneocystostomy for VUR. The BUN is 80 mg/dl, serum creatinine 2.9 mg/dl, CO₂ 12 mEq/l, and K 6.5 mEq/l. Her renal ultrasound shows severe bilateral hydroureteronephrosis. VCUG is normal. The next step is:
- cystoscopy and ureteral catheterization.
 - diuretic renal scan.
 - bilateral percutaneous nephrostomies.
 - cutaneous vesicostomy.
 - bilateral loop cutaneous ureterostomies.
55. A 48-year-old woman undergoes an uncomplicated transobturator sling procedure for stress urinary incontinence. She complains of left leg and thigh pain with abduction on the first postoperative day. The next step is:
- MRI scan of the pelvis.
 - non-steroidal anti-inflammatory drugs.
 - sling explantation.
 - vaginal re-exploration and adjustment of sling tension.
 - sling incision.
56. A 37-year-old woman has had a prior hysterectomy now complains of pelvic pressure and intermittent left flank pain. An ultrasound demonstrates severe left hydronephrosis, however, an IVP obtained one week later reveals normal upper tracts bilaterally. This same scenario is repeated over the next several months. A CT scan reveals a 2 cm cystic mass in the left hemipelvis. The next step is:
- excision of the left pelvic mass.
 - left ureteral reimplantation.
 - tamoxifen.
 - ureterolysis.
 - ureteral stent.

57. The most important risk factor for progressive hydronephrosis in patients with myelomeningocele is:
- A. high grade VUR.
 - B. detrusor overactivity.
 - C. decreased detrusor compliance.
 - D. LPP > 40 cm of H₂O.
 - E. striated sphincter dyssynergia.
58. A 75-year-old man living in a skilled nursing facility with rapidly progressive Parkinson disease reports long standing erectile dysfunction, and chronic urinary incontinence. DRE reveals a 20 g benign prostate. Tamsulosin does not improve his symptoms. Pressure-flow urodynamics reveals a maximum flow rate of 10 ml/second, detrusor pressure at maximum flow of 30 cm H₂O, stress incontinence at maximum capacity of 450 ml, and a PVR of 300 ml. The next step is:
- A. finasteride.
 - B. discontinue tamsulosin and start alfuzosin.
 - C. green light laser prostatectomy.
 - D. CIC by caregiver.
 - E. placement of artificial urinary sphincter.
59. A 45-year-old woman becomes hypotensive during an attempt at laparoscopic removal of a non-functioning, hydronephrotic kidney. There is no evidence of intraabdominal bleeding. Oxygen saturation dramatically decreases, and she develops a new heart murmur. The next step is to:
- A. reduce insufflation pressure; continue procedure.
 - B. insert bilateral chest tubes.
 - C. insert Swan-Ganz catheter.
 - D. place patient in the right lateral decubitus position with head up.
 - E. stop insufflation and release pneumoperitoneum.
60. A two-month-old uncircumcised boy with a sacral dimple undergoes evaluation of a febrile UTI. Ultrasonography shows bilateral hydroureteronephrosis and a conus medullaris at the mid aspect of L4. VCUG shows bilateral Grade IV reflux, slight beaking of the bladder neck and a normal urethra. The next step is:
- A. CMG.
 - B. cystoscopy.
 - C. MAG-3 renal scan.
 - D. circumcision.
 - E. vesicostomy.

61. A 65-year-old man with Parkinson's disease has urgency, nocturia, frequency, and urge incontinence. DRE reveals an enlarged prostate. The most likely etiology of his symptoms is:
- A. impaired detrusor contractility.
 - B. detrusor overactivity.
 - C. detrusor sphincter dyssynergia.
 - D. decreased detrusor compliance.
 - E. antiparkinsonian medications.
62. A one-year-old girl is evaluated for pyelonephritis. A VCUG is shown in exhibit 1, an ultrasound of the left kidney in exhibit 2, and a furosemide renogram in exhibit 3. The next step is:
- A. antibiotic prophylaxis.
 - B. upper pole nephrectomy.
 - C. ureteroureterostomy.
 - D. subureteric injection of implant.
 - E. cutaneous ureterostomy.





63. Successful toilet training in children requires:
- A. voluntary control over the periurethral smooth muscle.
 - B. volitional control over the internal sphincter.
 - C. autonomic control of detrusor contractions.
 - D. an increase in bladder capacity.
 - E. a decrease in bladder pressure.
64. A 55-year-old continent woman has persistent UTIs ten months following a synthetic urethral sling. Cystoscopy reveals the sling protruding through the left anterior-lateral bladder wall with an encrusted 1.5 cm stone. The next step is:
- A. cystolitholapaxy with repeat cystoscopy in three months.
 - B. transvaginal cystostomy and removal of intravesical portion of the sling with encrusted stone.
 - C. suprapubic cystotomy with removal of the stone and intravesical portion of the tape.
 - D. cystolitholapaxy followed by retropubic exploration with extravesical explantation of the sling and closure of the bladder defect.
 - E. complete removal of the tape and stone through a retropubic and vaginal approach and placement of autologous pubovaginal fascial sling.
65. A 65-year-old man who underwent placement of an intraurethral stent for treatment of a recurrent bulbar urethral stricture has a markedly decreased urinary stream three months postoperatively. Urethroscopy demonstrates obstructive tissue protruding through the stent. The next step is:
- A. balloon dilation.
 - B. replace stent.
 - C. urethroplasty.
 - D. suprapubic cystostomy.
 - E. endoscopic resection of tissue.
66. A 16-year-old girl with a neurogenic bladder remains incontinent despite an aggressive program of CIC and antimuscarinic medications. Videourodynamic evaluation demonstrates a flaccid, large capacity bladder and low urethral resistance. The best long-term management is CIC and:
- A. periurethral bulking agent.
 - B. bladder neck tubularization.
 - C. an artificial urinary sphincter.
 - D. a pubovaginal fascial sling.
 - E. a Mitrofanoff procedure.

67. A 28-year old man has a one-year history of erectile dysfunction unresponsive to sildenafil citrate. His baseline erectile rigidity averages 70% with poor sustaining ability. He obtains a 20% erection following the administration of 10 meg of PGE-i. Duplex Doppler penile ultrasound parameters after injection demonstrate peak systolic velocities of 18 cm/s bilaterally. The next step is:
- administer a second dose of intracavernosal PGEi.
 - change to vardenafil.
 - intracavernosal injection therapy.
 - cavernosometry.
 - pudendal arteriography.
68. The metabolic abnormalities most frequently encountered in patients with cystic fibrosis who develop nephrolithiasis are:
- hypercalciuria and hypocitraturia.
 - hypercalciuria and hyperuricosuria.
 - hyperoxaluria and hypocitraturia.
 - hyperoxaluria and hyperuricosuria.
 - hyperuricosuria and hypocitraturia.
69. In a patient with Cushing's syndrome due to an adrenal adenoma, the changes in hormone secretion following a high dose dexamethasone suppression test are best represented by:
- | | ACTH | Urinary Free Cortisol |
|----|-------------|------------------------------|
| A. | increase | decrease |
| B. | increase | increase |
| C. | unchanged | unchanged |
| D. | decrease | decrease |
| E. | decrease | increase |
70. A 20-year-old man undergoes a distal shunt (Al-Ghorab) for venocclusive priapism. Four hours later, he has a 70% rigid erection. The next step is:
- proximal cavernosal-spongiosal shunt.
 - intracorporal phenylephrine administration.
 - corporal blood gas analysis.
 - pudendal arteriography.
 - cavernosal-saphenous vein shunt.

71. A 28-year-old woman is diagnosed with hyperparathyroidism and asymptomatic urolithiasis. CT scan reveals several bilateral 5-7 mm calyceal calculi, multiple punctate calcifications within the renal pyramids, and unobstructed collecting systems. Her calculous disease should be managed by:
- A. staged SWL immediately prior to her planned subtotal parathyroidectomy.
 - B. simultaneous subtotal parathyroidectomy and bilateral SWL.
 - C. subtotal parathyroidectomy followed by staged SWL.
 - D. subtotal parathyroidectomy, full metabolic stone evaluation, and directed medical therapy.
 - E. subtotal parathyroidectomy and increased hydration.
72. During radical nephrectomy in a 50-year-old man, the superior mesenteric artery is inadvertently divided. The bowel segment likely to maintain normal blood supply is:
- A. duodenum.
 - B. jejunum.
 - C. ileum.
 - D. cecum.
 - E. ascending colon.
73. After a radical prostatectomy, a man complains of bothersome penile pain following orgasm. The next step is:
- A. cystoscopy.
 - B. tamsulosin.
 - C. cyclobenzaprine.
 - D. diazepam.
 - E. gabapentin.
74. A 39-year-old man with a large left varicocele requests vasectomy reversal four years after vasectomy. At scrotal exploration, he has rare nonmotile sperm in the right vas deferens and an absence of sperm in clear fluid from the left vas deferens. The next step is:
- A. bilateral vasovasostomy.
 - B. left varicocelectomy and bilateral vasovasostomy.
 - C. right vasovasostomy and left vasoepididymostomy.
 - D. left testis biopsy and intraoperative wet prep evaluation.
 - E. testicular sperm extraction.
75. Retroperitoneal organs juxtaposed to the left kidney are:
- A. adrenal, spleen, pancreas.
 - B. adrenal, pancreas, colon.
 - C. spleen, jejunum, colon.
 - D. adrenal, colon, spleen.
 - E. spleen, duodenum, pancreas.

76. A 72-year-old man with a 45 g benign prostate has frequency, urgency, and urge incontinence six months after TUMT. His AUA Symptom Score is 20 with a high degree of bother while taking an alpha-blocker. PVR is 175 cc. Pressure flow study shows detrusor overactivity with incontinence, a voiding pressure of 55 cm H₂O, and a flow rate of 7 ml/sec. The best treatment is:
- A. CIC.
 - B. 5-alpha-reductase inhibitor.
 - C. antimuscarinic and 5-alpha-reductase inhibitor.
 - D. repeat TUMT.
 - E. TURP.
77. A 78-year-old man with dilated cardiomyopathy and obstructive pulmonary disease underwent percutaneous radiofrequency ablation of an enlarging 2.7 cm renal mass. Six months later, MRI scan demonstrates persistent contrast-enhancement within the periphery of the tumor. The next step is:
- A. MRI scan in six months.
 - B. renal mass biopsy.
 - C. PET scan.
 - D. repeat percutaneous ablation.
 - E. partial nephrectomy.
78. The zones of the adrenal cortex from capsule to medulla are:
- A. reticularis, fasciculata, glomerulosa.
 - B. fasciculata, glomerulosa, reticularis.
 - C. glomerulosa, reticularis, fasciculata.
 - D. glomerulosa, fasciculata, reticularis.
 - E. reticularis, glomerulosa, fasciculata.
79. A patient with non-ischemic priapism is to undergo duplex Doppler ultrasonography to confirm the diagnosis. The ultrasonographer should scan the:
- A. ventral penile shaft.
 - B. dorsal penile shaft.
 - C. perineum.
 - D. perineum and ventral penile shaft.
 - E. perineum and dorsal penile shaft.

80. A 45-year-old man with metastatic clear cell carcinoma involving the lung, liver, lymph nodes, and bone undergoes a right radical nephrectomy. His preoperative labs include a hemoglobin of 9 gm/dl and a calcium of 11.5 mg/dl. The treatment most likely to prolong overall survival is:
- A. temsirolimus.
 - B. interferon alpha.
 - C. bevacizumab.
 - D. sorafenib.
 - E. sunitinib.
81. The blood supply to the appendix that must be preserved during an appendicovesicostomy arises from a branch of which artery:
- A. ileal.
 - B. anterior cecal.
 - C. posterior cecal.
 - D. ascending colic.
 - E. inferior mesenteric.
82. A 28-year-old white male who is sexually active has recurrent episodes of priapism requiring visits to the emergency department. The best treatment is:
- A. terbutaline.
 - B. LH-RH agonist.
 - C. digoxin.
 - D. baclofen.
 - E. home intracavernosal phenylephrine.
83. A 63-year-old man has left flank pain, persistent gross hematuria, and a palpable left abdominal mass. He has lost 30 lbs in the last six months. CT scan reveals a 12 cm heterogenous left renal mass that involves the posterior abdominal wall and left mesocolon. Serum hematocrit is 24%. A bone scan reveals a sacral metastasis. The next step is:
- A. oral sunitinib.
 - B. systemic interleukin-2.
 - C. palliative nephrectomy.
 - D. diverting colostomy and oral sunitinib.
 - E. left renal angioinfarction.

84. During staging pelvic lymphadenectomy for prostatic carcinoma, a delicate nerve, anterior and lateral to the right external iliac artery and lying along the anterior surface of the psoas muscle, is inadvertently severed. The expected ipsilateral neurological deficit is:
- A. inability to adduct the thigh.
 - B. inability to abduct the thigh.
 - C. inability to flex the thigh.
 - D. anesthesia of the lateral thigh.
 - E. anesthesia of the anterior thigh and lateral scrotum.
85. The etiology of PDE5 inhibitor-associated color vision disturbances (chromatopsia) is:
- A. PDE6 cross reactivity.
 - B. optic nerve ischemia.
 - C. optic nerve vasocongestion.
 - D. sphincter pupillae paralysis.
 - E. retinal venous congestion.
86. The VHL tumor suppressor gene regulates the expression of:
- A. basic fibroblastic growth factor.
 - B. epidermal growth factor receptor.
 - C. c-Met proto-oncogene.
 - D. vascular endothelial growth factor (VEGF).
 - E. transforming growth factor beta.
87. Among girls seen for evaluation of a reported straddle injury, which factor mandates an evaluation for sexual abuse:
- A. recurrent UTIs.
 - B. diurnal enuresis beyond age six years.
 - C. infrequent voiding.
 - D. age under nine months.
 - E. encopresis.
88. A 32-year-old single man with decreased libido and erectile dysfunction has a serum testosterone of 100 ng/dl (normal 300-1000 ng/dl) and a prolactin of 150 ng/ml (normal 0-15 ng/ml). He has no visual field abnormalities, but an MRI scan demonstrates a 1 cm pituitary tumor. After three months of bromocriptine, his testosterone is 120 ng/dl, and he is still impotent despite normalization of his prolactin and a slight reduction in the size of the tumor. The most appropriate treatment is:
- A. increase bromocriptine.
 - B. testosterone supplementation.
 - C. transsphenoidal pituitary surgery.
 - D. pituitary radiation.
 - E. hCG.

89. The most likely site of lymph node metastasis for a right-sided RCC is:
- A. precaval.
 - B. hilar.
 - C. para-aortic.
 - D. retrocrural.
 - E. interaortocaval.
90. At the time of a newborn circumcision, the distal one-half of the glans penis is amputated, including the urethra. The prepuce and glans have been kept in iced saline for four hours. The best management is:
- A. primary anastomosis.
 - B. graft of preputial skin for coverage.
 - C. discard glans tip and allow secondary healing.
 - D. discard the glans tip and re-configure remaining glans.
 - E. primary anastomosis with microvascular reconstruction.
91. A 28-year-old woman has headaches and blurred vision. Physical exam reveals bipedal edema and an S3 gallop. Her blood pressure is 190/80 mm Hg. Urinalysis shows 10-20 RBC/hpf. Serum creatinine is 1.2 mg/dl. Abdominal exam reveals a right flank mass. The most likely diagnosis is:
- A. polycystic kidney.
 - B. adrenal hemorrhage.
 - C. renal artery aneurysm.
 - D. renal arteriovenous fistula.
 - E. renal artery dissection.
92. A 37-year-old woman has low-grade fever and urinary incontinence four weeks after a robotic hysterectomy. A CT scan reveals urinary extravasation into the open vaginal cuff in the left pelvis. There is mild left ureterectasis, and a hematoma surrounds the distal left ureter that is not clearly visualized. Cystoscopy is negative and a stent could not be placed in the left ureter. In addition to I.V. antibiotics, the next step is:
- A. CT-guided pelvic drain placement.
 - B. left percutaneous nephrostomy tube and antegrade stent placement.
 - C. laparoscopic exploration and repair.
 - D. open exploration with ureteroneocystostomy.
 - E. open exploration with primary ureteral repair.
93. A 53-year-old T-5 paraplegic woman undergoes intra-detrusor botulinum toxin injections for intractable incontinence between catheterizations. She should be told that:
- A. botulinum toxin type B is most frequently used.
 - B. a repeat injection will likely be needed within three months.
 - C. a total dose of 200 units has been shown to have proven efficacy.
 - D. a dose of 100 units per injection site will be used.
 - E. general anesthesia is required for the procedure.

94. A 42-year-old woman has a blood pressure of 180/115 mm Hg. Serum chemistries include: BUN 14 mg/dl, creatinine 0.9 mg/dl, Na 140 mEq/l, CO₂ 28 mEq/l, K 3.1 mEq/l, Cl 100 mEq/l, calcium 10.4 mg/dl, and phosphorus 3.4 mg/dl. The plasma renin is 0.5 mg/ml/hr (normal: 1.0-8.0). The most likely diagnosis is:
- A. pheochromocytoma.
 - B. renal tubular acidosis.
 - C. renal artery stenosis.
 - D. Page kidney.
 - E. primary hyperaldosteronism.
95. The most likely underlying etiology for an ileo-vesical fistula in a 35-year-old man with pneumaturia is:
- A. Crohn's disease.
 - B. diverticulitis.
 - C. trauma.
 - D. appendiceal abscess.
 - E. malignancy.
96. A 1200 gm newborn boy is treated for presumed sepsis with antibiotics via an umbilical artery catheter for two weeks. Five days later, a skin rash is noted and urinary output decreases. He develops respiratory distress and abdominal distention. There is gross hematuria and particulate matter in the urine. The most likely diagnosis is:
- A. renal vein thrombosis.
 - B. fungal urinary infection.
 - C. umbilical artery perforation.
 - D. renal papillary necrosis.
 - E. renal cortical necrosis.
97. The renal arterial disease associated with stable renal function to the affected kidney is:
- A. atherosclerosis.
 - B. intimal hyperplasia.
 - C. fibromuscular hyperplasia.
 - D. medial fibroplasia.
 - E. perimedial fibroplasia.
98. Clear fluid with a high amylase content begins to drain from a suction catheter two days after difficult excision of a large left adrenal tumor. There is no fever and minimal leukocytosis. Two weeks later, the drainage remains copious but the overall clinical condition is stable. The next step is:
- A. nasogastric suction and parenteral hyperalimentation.
 - B. endoscopic intubation of the pancreatic duct.
 - C. continued observation.
 - D. distal pancreatectomy.
 - E. medium chain triglyceride diet.

99. A ten-day-old infant boy is hospitalized for failure to thrive. After his umbilical stump fell off, fluid has intermittently drained from the umbilicus. The umbilical fluid has a creatinine of 10 mg/dl and grows $>10^5$ cfu/ml of *E. coli*. The next step should be antibiotics and:
- A. observation.
 - B. cannulation and injection of contrast.
 - C. VCUG.
 - D. closure of fistula.
 - E. urethral catheter drainage.
100. An 80-year-old man experiences day and night urinary incontinence despite timed voiding every two hours and nightly fluid restriction. Urinalysis is normal, and PVR is 250 ml. Pressure-flow urodynamics reveal detrusor overactivity with impaired contractility. Maximum detrusor pressure is 10 cm H₂O. The best treatment is:
- A. bethanechol and daytime fluid restriction.
 - B. bethanechol and alpha-blocker.
 - C. antimuscarinic and alpha-blocker.
 - D. antimuscarinic and TURP.
 - E. antimuscarinic and CIC.
101. A 27-year-old man has a right testicular mass. Radical orchiectomy is performed and histology shows pure seminoma. CT scan is normal but serum beta-hCG remains 60 IU/ml (normal < 7 IU/ml) six weeks later. The next step is:
- A. radiation to retroperitoneal nodes.
 - B. radiation to retroperitoneal and mediastinal nodes.
 - C. RPLND.
 - D. platinum-based chemotherapy.
 - E. check serum LH levels.
102. A nine-month-old girl is brought to the operating room for repair of a right UPJ obstruction. Renal ultrasound shows moderately severe hydronephrosis with a large extrarenal pelvis and no thinning of the parenchyma. During the UPJ repair, the ureter is found to be narrow for 2.5 cm immediately below the UPJ. A tension-free dismembered pyeloplasty is not possible after renal mobilization. The next step is:
- A. cutaneous pyelostomy.
 - B. spiral flap pyeloplasty.
 - C. ureterocalycostomy.
 - D. appendix interposition.
 - E. Monti ileal ureter interposition.

103. A 28-year-old man with an ileal conduit for 20 years is scheduled for a renal transplant. He had a PUV treated as an infant. A CMG shows a 75 ml capacity bladder with detrusor overactivity, and his maximum voiding pressure is 50 cm H₂O. After five days of bladder cycling, his bladder capacity increases to 200 ml. The best management is:
- A. transplant into the existing ileal conduit.
 - B. bladder augmentation before transplant.
 - C. transplant into native bladder.
 - D. neobladder construction before transplant.
 - E. Indiana pouch construction before transplant.
104. A 63-year-old man, previously treated with pelvic radiation for colon cancer, develops localized Gleason 4+3=7 adenocarcinoma of the prostate. He undergoes radical prostatectomy that is complicated by a 3 cm rectourethral fistula four weeks after surgery. The best management is:
- A. bowel rest and urethral catheter drainage.
 - B. fecal diversion and bilateral percutaneous nephrostomies.
 - C. transrectal fistula repair.
 - D. transabdominal fistula repair.
 - E. staged fecal diversion and fistula repair.
105. A 55-year-old man has mild right flank pain eight weeks after an aorto-iliac vascular graft. Serum creatinine is 1.4 mg/dl, WBC 12,000/cu mm, and urine culture is sterile. Renal ultrasound shows moderate right hydronephrosis, and CT scan demonstrates the graft is posterior to the right ureter. The best treatment is:
- A. percutaneous nephrostomy.
 - B. oral steroid therapy.
 - C. transureteroureterostomy.
 - D. nephrectomy.
 - E. ureterolysis.
106. Combined renal and liver transplantation is curative for:
- A. amyloidosis.
 - B. primary hyperoxaluria.
 - C. Alport syndrome.
 - D. cystinosis.
 - E. Fabry's disease.

107. A 25-year-old man undergoes left scrotal exploration and subsequent orchiectomy. Pathologic and staging evaluation reveal a NSGCT clinical stage MB. After full-dose platinum-based chemotherapy, he has a residual 3 cm para-aortic mass. The next step in treatment should be RPLND and:
- A. wide excision of the scrotal scar.
 - B. wide excision of the scrotal scar and spermatic cord remnant.
 - C. removal of the spermatic cord remnant.
 - D. left hemiscrotectomy and removal of spermatic cord remnant.
 - E. left hemiscrotectomy, removal of the spermatic cord remnant and ipsilateral ilioinguinal node dissection.
108. A 14-year-old boy with C-4 quadriplegia secondary to a MVC six years ago has severe neurogenic bladder dysfunction, high-grade VUR, and marked hydroureteronephrosis. He requests urinary diversion because of inability to catheterize. The best choice of diversion is:
- A. bilateral loop ureterostomy.
 - B. Kock pouch.
 - C. non-refluxing colon conduit.
 - D. ileovesicostomy.
 - E. ureterosigmoidostomy.
109. A 20-year-old woman with ESRD of unknown etiology is being considered for renal transplantation. A 24-hour urine reveals a creatinine clearance of 18 ml/min and 600 mg protein. An ultrasound reveals small kidneys with mild bilateral caliectasis. Prior to transplantation, she should undergo:
- A. repeat creatinine clearance.
 - B. VCUG.
 - C. renal scan.
 - D. retrograde pyelography.
 - E. bilateral nephrectomy.
110. When assessing bone mineral density (BMD) with a DEXA (dual energy x-ray absorptiometry) scan in a 65-year-old man with prostate cancer treated on leuprolide, a T score defines the number of standard deviations from the mean BMD score of:
- A. age-matched peers.
 - B. age-matched peers with prostate cancer without prior androgen deprivation.
 - C. men between the ages of 20 and 35 years.
 - D. men between the ages of 45 and 55 years.
 - E. men between the ages of 60 and 70 years.

111. During continent reconstruction of the lower urinary tract using an intestinal segment, efforts are made to prevent reflux into the upper urinary tract in order to avoid:
- A. upper tract bacteriuria.
 - B. transmission of pressure to the kidney.
 - C. intestinal mucous in kidney.
 - D. upper tract urine storage.
 - E. yo-yo effect and ureteral dilation.
112. A 23-year-old woman suffers a complex pelvic fracture in a MVC. A cystogram reveals limited extraperitoneal extravasation of contrast at the bladder neck. The bladder is compressed by a pelvic hematoma and an anterior vaginal laceration is also present. No other injuries are noted, and she is hemodynamically stable. Treatment should be:
- A. urethral catheter drainage.
 - B. percutaneous suprapubic cystostomy.
 - C. open bladder repair.
 - D. suprapubic cystostomy and perivesical drainage.
 - E. repair of vaginal and bladder lacerations.
113. A 56-year-old man has a 2 cm solid mass in the upper pole of his right epididymis revealed on a scrotal ultrasound. The next step is:
- A. observation.
 - B. needle biopsy.
 - C. mass excision.
 - D. epididymectomy.
 - E. inguinal orchiectomy.
114. As a part of normal renal function, most of the filtered solutes and water are returned to the systemic circulation by:
- A. proximal tubular reabsorption.
 - B. proximal tubular secretion.
 - C. distal tubular secretion.
 - D. the countercurrent mechanism.
 - E. distal tubular reabsorption.
115. A 43-year-old man has sudden onset of fever (103° F), chills, dysuria, increased urinary frequency, and difficulty voiding. Physical examination reveals lower abdominal tenderness and a swollen, tender prostate. Prior to antibiotic treatment, culture should be obtained from the:
- A. urethra.
 - B. catheterized urine.
 - C. expressed prostatic fluid.
 - D. voided urine after prostatic massage.
 - E. mid-stream urine.

116. A 68-year-old man has a 4 cm scrotal mass. Ultrasound shows a normal testis with a heterogeneous paratesticular tumor. During inguinal exploration a solid mass is encountered attached to the spermatic cord, separate from the testis and scrotum. Frozen section biopsy shows a spindle cell tumor. The next step is:
- A. excision of the mass.
 - B. radical orchiectomy.
 - C. radical orchiectomy and hemi-scrotectomy.
 - D. radical orchiectomy and inguinal node dissection.
 - E. radical orchiectomy and scrotal irradiation.
117. A 65-year-old man has chronic urinary retention and pedal edema. His BUN is 75 mg/dl. He is catheterized and a brisk diuresis of 500 ml/hr ensues. Forty-eight hours later, the BUN is normal and the ankle edema is gone, but the diuresis persists. The probable cause of the persistent diuresis is:
- A. overload of fluid prior to relief of the obstruction.
 - B. increased urea content in the urine.
 - C. failure to decompress the bladder slowly.
 - D. abnormal ADH secretion.
 - E. decreased tubular sodium reabsorption.
118. The most effective treatment of balanitis xerotica obliterans affecting the prepuce, glans penis, and the meatus is:
- A. topical corticosteroids.
 - B. 5-fluorouracil cream.
 - C. circumcision.
 - D. meatal dilation.
 - E. meatoplasty.
119. A 78-year-old man had a radical cystectomy and ileal conduit for recurrent bladder cancer following radiation therapy. Pathology showed stage pT3bN0M0 cancer. CT scan at one year was normal, but at two years there was marked right hydroureteronephrosis with very thin residual renal parenchyma. Loopogram shows a tight narrowing of the right distal ureter 2 cm above the ureteroileal junction. He is asymptomatic and serum creatinine is 1.6 mg/dl. The next step is:
- A. observation.
 - B. retrograde balloon dilation of the ureter.
 - C. percutaneous laser incision of the stricture.
 - D. open reimplantation of the ureter into the ileum.
 - E. right nephroureterectomy.

120. A 60-year-old man has a prolonged ileus for three weeks after radical nephrectomy complicated by a wound infection. Hydration is maintained by intravenous fluids. Serum sodium, potassium, bicarbonate, chloride, and creatinine are normal. He develops neuromuscular irritability, tetany, and behavioral disturbances. The cause of these symptoms is most likely:
- A. hypoglycemia.
 - B. hypomagnesemia.
 - C. hypoproteinemia.
 - D. hypocalcemia.
 - E. hypercalcemia.
121. A 32-year old man complains of perineal pain, ejaculatory pain, and urinary frequency for the last eight months. Urine cultures have been negative and cystoscopy was also negative. A three week course of Bactrim did not resolve his symptoms. Expressed prostatic secretion now shows 15 WBC/hpf compared to 5 WBC/hpf prior to antibiotic treatment. This expressed prostatic secretion finding:
- A. indicates he will need treatment with ciprofloxacin.
 - B. is not relevant to the severity of his symptoms.
 - C. predicts he will respond to alpha-blockers.
 - D. is consistent with a prostatic abscess.
 - E. corresponds with a diagnosis of autoimmunity.
122. A 59-year-old man with a solitary kidney and normal renal function has a left renal pelvic filling defect on CT urogram. Ureteroscopy reveals a 3.5 cm solid appearing mass involving the renal pelvis and extending into the lower pole infundibulum. Biopsy and renal pelvic washing reveal high grade urothelial carcinoma. Bladder biopsies and metastatic evaluation are negative. The next step is:
- A. ureteroscopic laser ablation of tumor.
 - B. percutaneous tumor resection.
 - C. partial nephrectomy.
 - D. nephroureterectomy and dialysis.
 - E. nephroureterectomy, cystectomy with ileal conduit and dialysis.
123. A 17-year-old boy with membranous nephropathy has generalized anasarca. The serum creatinine is 1.7 mg/dl. A 24-hour urine collection contains 6.8 g protein. Other likely associated findings include:
- A. hypoproteinemia, hypocholesterolemia.
 - B. hypercholesterolemia, increased total body sodium.
 - C. hypovolemia, reduced total body sodium.
 - D. hyponatremia, hyperkalemia.
 - E. hypovolemia, metabolic acidosis.

124. An 85-year-old woman with an ileal conduit has recurrent sepsis due to pyocystis despite weekly bladder irrigations with antibiotic solution. Cystoscopy demonstrates no evidence of malignancy. The next step is:
- prophylactic oral antibiotics.
 - intravesical silver nitrate.
 - suprapubic cystostomy.
 - vaginal vesicostomy.
 - simple cystectomy.
125. A 49-year-old man has a persistently palpable 2 cm right inguinal lymph node following circumcision and six weeks of antibiotics for a grade 1 non-invasive squamous carcinoma of the penis confined to the prepuce. CT scan of abdomen and pelvis and chest x-ray are negative. The next step is:
- needle biopsy of lymph node.
 - additional six weeks of antibiotics.
 - bilateral inguinal lymphadenectomy.
 - right ilioinguinal lymphadenectomy.
 - bilateral ilioinguinal lymphadenectomy.
126. A 35-year-old man has a serum creatinine of 15 mg/dl and a serum potassium of 7.5 mEq/l. Electrocardiogram shows peaked T waves and a widened QRS complex. The most appropriate initial treatment of his hyperkalemia is:
- hemodialysis.
 - Kayexalate enema.
 - intravenous sodium bicarbonate and calcium gluconate.
 - intravenous concentrated glucose and regular insulin in the same infusion.
 - intravenous concentrated glucose and regular insulin in separate infusions.
127. The presumed mechanism of action of sodium pentosan polysulfate (Elmiron®) is:
- decreased mast cell degranulation.
 - increased urothelial cell proliferation.
 - decreased cytokine expression in bladder.
 - increased glycosaminoglycan expression in bladder.
 - decreased antiproliferative activity.
128. The MRI signal intensity seen for various parts of the prostate on T2-weighted images are best described as:

	<u>Peripheral Zone</u>	<u>Central Zone</u>	<u>Seminal Vesicles</u>
A.	high	intermediate	high
B.	intermediate	high	high
C.	high	intermediate	intermediate
D.	high	high	intermediate
E.	intermediate	high	intermediate

129. A four-year-old boy with a previously treated PUV and hydronephrosis has nocturnal enuresis and some daytime wetness. A 24-hour urine collection shows a volume of 1800 ml. The best treatment is:
- A. vasopressin.
 - B. salt restriction.
 - C. postvoid catheterization.
 - D. decrease oral fluid intake.
 - E. increase frequency of voiding.
130. A 65-year-old woman has intermittent dysuria and urgency. There is no association with sexual activity, and there are no urinary symptoms between episodes. Voided midstream urinalyses while symptomatic reveal occasional RBCs, 1 to 3 WBCs, and 1 to 3 squamous epithelial cells per hpf. Initial management should be:
- A. urine culture during symptomatic episodes.
 - B. prophylactic antibiotics.
 - C. cystoscopy.
 - D. renal ultrasound.
 - E. assess PVR.
131. A 60-year-old man with clinical T2N0M0 bladder cancer elects radical cystectomy and Indiana Pouch diversion. Pre-operative evaluation should include:
- A. sigmoidoscopy.
 - B. barium enema.
 - C. colon biopsy.
 - D. colonoscopy.
 - E. upper GI with small bowel follow through.
132. Following ablation of a PUV in a newborn male, difficulty passing a catheter into the bladder is most likely due to:
- A. incompletely resected urethral valves.
 - B. a false passage.
 - C. a prostatic utricle.
 - D. hypertrophied bladder neck.
 - E. external sphincter spasm.
133. A healthy 32-year-old sexually active man has two 3.0 mm warts on his penile shaft. The next step is:
- A. observation.
 - B. examination of his sexual partner.
 - C. type-specific HPV nucleic acid testing.
 - D. biopsy.
 - E. chemical or surgical removal.

134. A 56-year-old man with invasive bladder cancer desires a continent urinary diversion at the time of cystectomy. He has minimal proteinuria and a creatinine of 2.3 mg/dl. He may be an appropriate candidate for continent diversion if which of the following parameters are obtained for GFR (inulin clearance test), urinary acidification (in response to ammonium chloride loading) and urine osmolality (in response to water deprivation):

	<u>GFR (ml/min)</u>	<u>pH (uOSM)</u>	<u>uOSM (OSM/kg)</u>
A.	39	4.9	750
B.	31	6.6	500
C.	45	5.5	350
D.	40	6.3	550
E.	30	5.5	650

135. The maximal allowable dose of bupivacaine (Marcaine) in mg/kg is:

- A. 1.00.
- B. 1.50.
- C. 2.50.
- D. 4.00.
- E. 6.00.

136. An important source of error in using the nitrite urinary dipstick is:

- A. extended exposure of the dipstick to room air.
- B. insufficient urinary nitrate from the diet.
- C. lack of bacterial nitrate production.
- D. degradation of urinary nitrite in the bladder overnight.
- E. interference from leukocyte esterase.

137. A 32-year-old woman with a solitary kidney underwent urinary diversion with an ileal conduit as a child. She has stable, moderate hydronephrosis, but her serum creatinine has risen to 2.8 mg/dl. A loopogram shows no reflux and no residual urine. A diuretic renogram reveals delay in uptake of the radiopharmaceutical and poor response to diuretic with a T1/2 of 22 minutes. The next step is:

- A. revision of the ileal conduit.
- B. antegrade pressure perfusion study.
- C. renal biopsy.
- D. non-contrast CT scan.
- E. hydrate and repeat the renogram.

138. An eight-year-old girl is evaluated for microscopic hematuria. Abdominal films demonstrate bilateral nephrocalcinosis with fine flecks of calcium appearing in most papillae. Renal function is normal. The most likely diagnosis is:
- A. distal RTA.
 - B. idiopathic hypercalciuria.
 - C. Fanconi syndrome.
 - D. proximal RTA.
 - E. hyperparathyroidism.
139. When renal exploration for penetrating trauma is performed without initial renal vascular control, the result, compared to early vascular control, is:
- A. decreased operative time.
 - B. increased blood loss.
 - C. increased renal loss.
 - D. increased blood transfusions.
 - E. decreased mortality.
140. A 62-year-old man underwent an ileal conduit using a loop (Turnbull) stoma. He has abdominal discomfort and a large parasternal hernia after two failed repairs. The next step is:
- A. conversion to colon conduit.
 - B. application of abdominal binder.
 - C. closure of the fascial defect with synthetic mesh graft.
 - D. transposition of stoma to opposite side of abdomen.
 - E. conversion to standard end-on stoma.
141. The most common long-term problem in neonates with unilateral renal vein thrombosis is:
- A. nephrotic syndrome.
 - B. hypertension.
 - C. renal scarring.
 - D. glomerulonephritis.
 - E. recurrent renal infection.
142. A 22-year-old man suffered a pelvic fracture and urethral disruption five months ago. Combined retrograde urethrography and antegrade cystography reveals complete obliteration of the posterior urethra with a 2 cm defect. He cannot maintain an erection sufficient for intercourse. Prior to definitive urethral reconstruction, evaluation should include:
- A. dynamic infusion cavernosometry.
 - B. nocturnal penile tumescence testing.
 - C. in office intracavernosal injection of alprostadil.
 - D. penile duplex Doppler ultrasound with intracavernosal injection.
 - E. pelvic MRI scan.

143. A 70-year-old man undergoes transperineal brachytherapy with ¹²⁵I seeds for localized prostate cancer. The preoperative AUA Symptom Score was 18. Three months after treatment he has significant obstructive voiding symptoms and a postvoid residual of 250 ml. There is no improvement with oral terazosin. The best management at this time is:
- A. bicalutamide (Casodex).
 - B. tamsulosin (Flomax).
 - C. CIC.
 - D. finasteride (Proscar).
 - E. TURP.
144. A newborn boy has an enlarged tongue, visceromegaly, and an enlarged left leg. The next step in management is:
- A. VCUG.
 - B. MRI scan.
 - C. serial abdominal ultrasounds.
 - D. alpha-fetoprotein and beta-hCG.
 - E. karyotype.
145. A 33-year-old man has sharply marginated, dusky red patches on his inner thighs with complaints of pruritis. The scrotum and penis are not involved, and only mild inflammation is present in the inguinoscrotal folds. The peripheral borders of the patches are elevated and erythematous. The treatment of choice is:
- A. topical nystatin (Mycostatin®).
 - B. topical tolinaftate (Tinactin®).
 - C. oral fluconazole (Diflucan®).
 - D. topical triamcinolone (Aristocort®).
 - E. oral prednisone (Deltasone®).
146. An asymptomatic 43-year-old man with a PSA of 5.4 ng/ml has diffuse inflammation noted on prostate biopsy. The next step is:
- A. PSA surveillance.
 - B. empiric antibiotics.
 - C. NSAIDS.
 - D. repeat biopsy.
 - E. 5-alpha-reductase inhibitor.
147. Renal blood flow is autoregulated primarily by:
- A. renal innervation.
 - B. the macula densa.
 - C. endothelin.
 - D. efferent arteriolar tone.
 - E. afferent arteriolar tone.

148. During routine serologic screening, a 28-year-old sexually active man has a positive VDRL test. Confirmation of the test result should be made with:
- A. careful history and physical examination.
 - B. the automated reagin test (ART).
 - C. repeat VDRL testing.
 - D. T. pallidum immobilization test (TPI).
 - E. fluorescent-treponemal antibody-absorbed test (FTA-ABS).
149. A 75-year-old man has a rising PSA following external beam radiotherapy for prostate cancer. His PSA level nadirs to 0.4 ng/ml, and is measured at 0.7 ng/ml, 2.1 ng/ml, and 5.4 ng/ml at 9, 12, and 15 months following radiotherapy, respectively. The next step is:
- A. continued observation.
 - B. prostate biopsy.
 - C. lymph node dissection.
 - D. salvage cryoablation.
 - E. hormonal ablation.
150. A neonate with a 10 cm renal mass has hypertension and a pulse of 200 bpm. The likely etiology of his hypertension is:
- A. renal vein thrombosis.
 - B. neuroblastoma.
 - C. congenital mesoblastic nephroma.
 - D. obstructive hydronephrosis.
 - E. pheochromocytoma.

Question #1**ANSWER=B**

A thorough medical history, including an assessment of current medications is imperative when starting patients on alpha-blocker therapy. While several studies have demonstrated the safety of terazosin, and that typically blood pressure is only lowered in hypertensive patients, the concomitant use of terazosin and calcium channel blockers, especially verapamil is dangerous and can precipitate severe hypotension. The use of an alpha-blocker and a diuretic, beta-blocker, or ACE-inhibitor has not been associated with the same risk of hypotension.

Kirby R, Lepor H: Evaluation and nonsurgical management of benign prostatic hyperplasia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 87, pp 2780-2782.

Question #2**ANSWER=D**

Genetic abnormalities commonly associated with severely abnormal sperm production include microdeletions of the Y chromosome, classic Klinefelter's syndrome, or mosaic Klinefelter's syndrome. A 45.XO karyotype is associated with Turner's syndrome (gonadal dysgenesis) in phenotypic women. Men with microdeletions of the Y chromosome typically have a normal appearance. The phenotypic appearance of this patient is most consistent with Klinefelter's syndrome. Men with classic Klinefelter's syndrome are almost always azoospermic, suggesting that this patient most likely has a mosaic form of this syndrome.

Lanfranco F, Kamischke A, Zitzmann M, Nieschlag E: Klinefelter's syndrome. LANCET 2004;364(9430):273-283.

Question #3**ANSWER=B**

In patients desiring active surveillance, it is important to determine if the patient is truly low risk in as accurate a fashion as possible. This patient has low PSA, low stage, favorable Gleason score, and small volume disease. By most established clinical criteria, he meets the guidelines for minimal disease appropriate for surveillance. Immediate repeat biopsy is considered advisable because it will confirm the favorable pathologic factors of the first biopsy, and it has been shown to predict the likelihood of progression in the series by Patel, et al. In this series, actuarial progression free survival with 83% in men without abnormal findings on repeat biopsy compared to 43% in those with abnormal findings on repeat biopsy. In individuals with small volume disease, serum PSA measurements alone are not adequate to follow disease progression on active surveillance. As such, using antibiotics to drive the PSA down will not improve the performance characteristics of PSA in assessing risk. Annual biopsy will be required after immediate repeat biopsy.

Eastham JA, Scardino PT: Expectant management of prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 96, pp 2951-2955.

Patel MI, DeConcini DT, Lopez-Corona E, et al: An analysis of men with clinically localized prostate cancer who deferred definitive therapy. J UROL 2004;171:1520-1524.

Question #4

ANSWER=E

CIC is the preferred bladder management in most spinal cord injury patients and is associated with a low incidence of VUR, squamous metaplasia of the bladder lining, bladder calculi, and pyelonephritis. However, local trauma to the urethral wall induced by repeated introduction of the catheter has been reported. Strictures and false passages seem to appear after several years in some male patients.

Moy ML, Wein AJ: Additional therapies for storage and emptying failure, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 70, pp 2294-2295.

Question #5

ANSWER=E

A gradual decline in success rates is seen with increasing intervals of obstruction, with pregnancy rates dropping below 50% after nine years. Delivery rates also decline significantly when the age of the partner is over 35 years. One study suggested that vasectomy at a younger age correlates with higher success rates, but this finding has yet to be validated by others. The significance of a positive antisperm antibody (ASA) status is controversial, but the high rate of successful vasectomy reversals despite the high incidence of ASA after vasectomy suggests that ASA status may not be a reliable prognostic factor.

Hagler HM, Rotman M: Predictive parameters for microsurgical reconstruction. UROL CLIN N AM 2002;29:913-919.

Question #6

ANSWER=C

This patient suffers from post-augmentation cystoplasty incontinence because of intermittent overactive contractions of the augmented bladder as seen in the urodynamic study. This can occur despite adequate detubularization of the bowel or from inadequate bivalving of the bladder. When antimuscarinics fail, the best treatment is inserting an additional patch of bowel into the cystoplasty. There is no evidence of urethral insufficiency on the urodynamic study as there is no leakage with Valsalva maneuvers. Therefore, procedures to either augment urethral resistance or close the urethra are not indicated. There is no indication to perform a suprapubic urinary diversion since the lower urinary tract is still useful and can be further rehabilitated.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 124, pp 3680-3681.

Question #7

ANSWER=B

This patient has a high symptom problem index with a significant bother score, therefore watchful waiting is not appropriate, and he should be offered intervention. A VA study of 1229 patients randomized to placebo, alpha-blocker therapy, finasteride, or combination therapy with alpha-blockers plus finasteride showed the superiority of alpha-blocker therapy alone in improvement of symptoms and peak flow rate. Other than an additional reduction in prostate volume, combination therapy with finasteride did not provide significantly more symptom relief. Combination therapy may be beneficial in a man with an enlarged prostate, however, there is no indication that the prostate is enlarged in this individual and, therefore, the initial cost and potential adverse effects of combination therapy are not justified in this untreated patient. This patient has no absolute indication for prostatectomy and should be initially offered medical therapy with alpha-blockers. Medical therapy of prostatic symptoms has shown a reduction in BPH progression with combination therapy, though this question focuses on symptomatic relief in a patient without significant prostatic enlargement, which would be best achieved by alpha-blockade alone.

Roehrborn CG, McConnell JD, Barry MJ, et al: Guideline on the management of benign prostatic hyperplasia. BENIGN PROSTATIC HYPERPLASIA GUIDELINE. AUA Education and Research, 2003, p 24.

Kirby R, Lepor H: Evaluation and nonsurgical management of benign prostatic hyperplasia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 87, pp 2787, 2796-2797.

Question #8

ANSWER=D

When testis longitudinal axis is > 4.5 cm and FSH is < 7.6 mIU/ml, 96% of azoospermic men will have obstructive azoospermia. Scrotal exploration for reconstruction may be directly undertaken without the need for a testis biopsy. Because the likelihood of epididymal obstruction requiring epididymovasostomy is high, percutaneous epididymal sperm aspiration should not be performed in these patients, as the epididymis may be permanently damaged preventing subsequent epididymovasostomy. Scrotal ultrasound is not sensitive enough to identify vasoepididymal obstruction, and clomiphene citrate would not be helpful in a patient with obstructive azoospermia.

Schoor RA, Elhanbly S, Niederberger CS, Ross LS: The role of testicular biopsy in the modern management of male infertility. J UROL 2002;167:197-200.

Question #9**ANSWER=D**

It is clear that prompt surgical resection is the only effective treatment of pheochromocytoma. The one accepted exception is a pheochromocytoma in a late term pregnancy. In this setting, the patient should be treated with alpha-adrenergic blockade with phenoxybenzamine until the fetus has reached maturity to manage the hypertension. At this point, she should undergo caesarean section and tumor resection in one operation. The patient should not undergo the stress of vaginal delivery.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1863.

Question #10**ANSWER=E**

Osteopenia and osteoporosis are recognized as major long-term complications of hormonal deprivation therapy. As men age, they have a pre-existing risk of osteopenia. This is increased upon hormonal deprivation due to the loss of circulating estrogens. In men, the sole source of estrogen is peripheral conversion of testosterone by aromatase. In men who receive pharmacologic or surgical castration, loss of testosterone results in loss of estrogen. Use of estradiol in men results in loss of endogenous testosterone through suppression of the hypothalamic-pituitary axis. As such, men receiving estradiol will have suppression of endogenous estrogen production, but the exogenously administered estrogen preserves bone density.

Ross RW, Small EJ: Osteoporosis in men treated with androgen deprivation therapy for prostate cancer. J UROL 2002;167:1952-1956.

Scherr D, Pitts WR, Vaughan, ED Jr.: Diethylstilbestrol revisited: Androgen deprivation, osteoporosis, and prostate cancer. J UROL 2002;167:535-538.

Nelson JB: Hormone therapy for prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 104, p3082.

Question #11**ANSWER=D**

Cystic fibrosis is an autosomal recessive disease with a carrier frequency of 1 in 25. Cystic fibrosis mutations may be severe or mild. Accounting for approximately 70% of cystic fibrosis alleles, the delta-F508 genotype is the most common severe mutation, and results from a three base pair deletion in exon 10 of the cystic fibrosis gene. If both alleles carry the severe mutation, offspring will be affected with the systemic and pulmonary form of cystic fibrosis. Without a priori knowledge of his partner's genotype,

the probability of offspring with cystic fibrosis born to a heterozygous carrier is $1:25 \times 1:4 = 1:100$.

Claustres M: Molecular pathology of the CFTR locus in male infertility. REPROD BIOMED ONLINE 2005;10:14-41.

Jaffee T, Oates RD: Genetic aspects of infertility, in Lipshultz LI, Howards SS (eds): INFERTILITY IN THE MALE, ed 3. St. Louis, Mosby Year-Book Inc, 1997, chap 15, p 293.

Question #12

ANSWER=D

Many patients with RCC manifest asynchronous metastases which when solitary and resectable are best managed surgically, hence adrenalectomy is the best choice. This approach has been associated with prolonged disease-free survival, especially when the interval between the initial diagnosis and metastasis is greater than one year. Neither the clinical nor radiographic data in this case are suggestive of pheochromocytoma, which would be expected if the nodule was hyperintense compared to the liver on T2-weighted images. A benign adrenal adenoma is possible, but in view of the history of RCC it is a diagnosis of exclusion. Waiting six months to determine if the lesion has change radiographically places the patient at risk for progressive metastatic disease. The malignant potential of adrenal tumors is notoriously difficult to determine on a needle biopsy.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, pp 1631-1632.

Question #13

ANSWER=C

This patient requires a procedure that can eliminate the prostatic obstruction yet allow him to continue his anticoagulation therapy. Of the options provided, non-contact laser prostatectomy, either non-contact or holmium laser enucleation, is able to accomplish these goals. TUNA and TUMT are generally indicated for men with moderate to severe symptoms of BPH who desire minimally invasive treatment. TUIP and transurethral electrovaporization of the prostate are contraindicated in men who are being treated with systemic anticoagulation.

Fitzpatrick JM: Minimally invasive and endoscopic management of benign prostatic hyperplasia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 88, pp 2820-2829.

Question #14**ANSWER=C**

Hypocitraturia is often associated with chronic diarrheal states. While the threshold for normal urinary citrate is controversial, a 24-hour urinary citrate level less than 320 mg generally identifies hypocitraturia. For a patient who refuses pharmacologic therapy, citrus beverages such as lemonade and orange juice increase urinary volume and citrate excretion. Carbonated water may also increase urinary citrate levels. Milk products may be useful in hyperoxaluria associated with chronic diarrhea. Tea is high in oxalate, and may be involved in calcium oxalate lithiasis. Protein intake increases urinary calcium, oxalate and uric acid excretion, and is not specifically involved in citrate excretion.

Pietrow PK, Preminger GM: Evaluation and medical management of urinary lithiasis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 43, p 1412.

Question #15**ANSWER=C**

The clinical scenario is unlikely to be associated with bone metastasis, but the abnormal bone scan in this area should be evaluated. Plain films carry a low sensitivity for the detection of bone metastasis, and as such, their main purpose is for the detection of other explanations for the bone scan findings such as fracture or degenerative disease. In the event the plain films are normal, the bone scan findings remain unexplained, and further evaluation is warranted. Bone biopsy is too invasive of a test given the low likelihood of metastasis. MRI scan is the most sensitive radiologic test to screen for bone metastasis after radionuclide imaging. Lesions on plain radiography must involve at least 50% bone loss to be visible.

Montie JE: Staging systems for prostate cancer, in Vogelzang NJ, Scardino PT, Shipley WU, Coffey DS (eds): COMPREHENSIVE TEXTBOOK OF GENITOURINARY ONCOLOGY, ed 2. Philadelphia, Lippincott Williams & Wilkins, 2000, chap 39, pp 673-679.

Carter HB, Allaf ME, Partin AW: Diagnosis and staging of prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 94, p 2912.

Question #16**ANSWER=D**

RTA can be caused by a variety of disorders that interfere with the ability of the renal tubule to secrete hydrogen ion. There are two major types; type 1, classic or distal; and type 2, proximal. Type 1, distal RTA, occurs due to a defect in the distal nephron. The normal kidney can respond to various stimuli by excreting sufficient free hydrogen to produce a minimum urine pH of 4.0 to 4.4. Inability of the kidney to acidify urine to a pH of less than 5.4 is a sign of distal RTA. Most patients with this disorder have a urine pH

greater than 6. Patients with distal RTA have a hypokalemic, hyperchloremic metabolic acidosis. These patients are prone to urolithiasis and can develop nephrocalcinosis. Low urinary citrate in this setting is diagnostic.

Herrin JT: Renal tubular acidosis, in Barratt TM, Avner ED, Harmon WE (eds): PEDIATRIC NEPHROLOGY, ed 4. Baltimore, Lippincott Williams & Wilkins, 1999, chap 33, pp 573-574.

Pearle MS, Lotan Y: Urinary lithiasis: Etiology, epidemiology, and pathogenesis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 42, p 1380.

Question #17

ANSWER=A

This patient has a hematocolpos due to vaginal obstruction, the Mayer-Rokitansky-Kuster-Hauser syndrome which occurs in 1:4000 female births. This syndrome is composed of vaginal agenesis or absence with a rudimentary uterus, normal ovaries, and normal external genitalia. Absence or agenesis of the vagina is a developmental error of the ureterovaginal canal or the vaginal plate with failure of müllerian duct fusion. Renal anomalies are common with over one third of patients noted to have renal agenesis, ectopia or fusion abnormalities. Skeletal anomalies have been reported in 12% of girls and usually involve the spine, limbs or ribs. Diagnosis of this condition is made most often at the time of puberty in association with amenorrhea. Occasionally, it is noted in the neonatal period when evaluating a pelvic mass.

Hensle TW: Genital anomalies, in Gillenwater JY, Grayhack JT, Howards SS, Mitchell ME (eds): ADULT AND PEDIATRIC UROLOGY, ed 4. Philadelphia, Lippincott, Williams and Wilkins, 2002, chap 52, pp 2487-2500.

Question #18

ANSWER=D

This patient's tumor profile is most consistent with locally advanced disease. Locally advanced prostate cancer has been proven difficult to treat and is likely best managed with multi-modal therapy. Numerous authors have suggested that neoadjuvant hormone ablation therapy might improve outcomes in these patients. Unfortunately, all of the seven randomized clinical trials (consisting of over 1400 patients) that compared three months of neoadjuvant hormone therapy to placebo prior to prostatectomy failed to show any survival advantage in the neoadjuvant group. In fact, the only difference noted between the two groups was that neoadjuvant patients had a lower positive margin rate that did not translate into a biochemical-free, disease-specific or overall survival advantage with follow-up of up to six years. A recent randomized clinical trial from Canada compared 3 vs. 8 months of neoadjuvant therapy and found no difference between the arms.

Klein EA, Mahadevan A, Kupelian P, Dreicer R: Management of locally advanced prostate cancer. AUA UPDATE SERIES 2004, vol 23, lesson 32, pp 258-263.

Question #19**ANSWER=E**

Autonomic dysreflexia is characterized by acute hypertension, bradycardia, severe headache, vasoconstriction below the lesion, and vasodilation above the lesion. It is due to exaggerated sympathetic discharge in response to stimuli below the level of the lesion. This most likely occurs in spinal cord injured patients with complete lesions above T6, the location of sympathetic ganglia. It is an emergency and must be treated immediately by removal or reversal of the stimulus. The most common stimulus is distension of a hollow viscus, such as during urodynamic testing.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, p 2025.

Question #20**ANSWER=A**

A reduction in the focal volume is a geometric result of enlarging the aperture of the shock wave generator. Newer generation lithotriptors cause little pain, but have a small focal volume and high focal pressure. The higher retreatment rates with newer lithotriptors may be due, in part, to the smaller focal volume. Accurate placement of the stone in the focus is critical with these lithotriptors.

Lingeman JE, Matlaga BR, Evan AP: Surgical management of upper urinary tract calculi, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 44, p 1472.

Question #21**ANSWER=B**

In a recently reported large series of partial nephrectomies, urinary fistula was reported as the most frequent complication (17%), followed by renal failure, infection, bleeding, and vascular thrombosis. Fistulas occurred more frequently in larger, centrally located tumors and those removed with an ex vivo approach. UTI and renal infarction are infrequent complications. In more contemporary series of laparoscopic partial nephrectomies, urinary fistula is still the most common complication.

Novick AC: Open surgery of the kidney, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 50, p 1749.

Question #22**ANSWER=D**

A T6 spinal cord injury would be associated with severe detrusor overactivity and detrusor sphincter dyssynergia, in most instances. A suprapubic tube would not help

with the stress incontinence that has developed due to sphincteric damage from the long-standing urethral catheter. The patient already has severe detrusor overactivity and reflux, despite antimuscarinic use. Therefore, a sling alone will still likely be associated with detrusor overactivity-induced leakage, and may intensify the risk of upper tract damage. Ileovesicostomy would likely be associated with ongoing urethral leakage, again due to the damaged sphincter. Collagen may help improve outlet resistance, but performing CIC repeatedly through the injected area will likely render any beneficial effect meaningless as the collagen gets molded due to chronic catheterization. An augment, coupled with a sling will take care of the detrusor overactivity, and the damaged sphincteric unit. The patient would need to CIC.

Moy ML, Wein AJ: Additional therapies for storage and emptying failure, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 70, p 2291, 2293.

Question #23

ANSWER=C

Enteric hyperoxaluria is commonly associated with inflammatory bowel disease or short-gut syndrome. Malabsorption increases the colonic permeability of oxalate by causing fat and bile to bind to intraluminal calcium, leaving oxalate unbound and free to traverse the colonic epithelium. Restricting oxalate is generally insufficient as the cause is not an overabundance of oxalate, and compliance is difficult for regimens intending to eliminate all oxalate sources. Oral calcium binds to the free oxalate and prevents its absorption.

Parks JH, Asplin JR, Coe FL: Patient adherence to long-term medical treatment of kidney stones. J UROL 2001;166:2057-2060.

Pietrow PK, Preminger GM: Evaluation and medical management of urinary lithiasis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 43, p 1422.

Question #24

ANSWER=D

Almost all persistently positive cytologies in the first six months after BCG treatment for T1 or Tis disease are due to disease in the bladder, and in this setting an extensive search for extravesical disease is not indicated. In addition, cytology may continue to revert to normal for three months after the last BCG treatment. Repeat cystoscopy, upper tract evaluation, and bladder biopsy is the most effective way to detect a recurrence. Disease can also recur in the prostatic urethra; however, transurethral bladder biopsy is the most effective means by which to make the diagnosis.

Jones JS, Campbell SC: Non-muscle-invasive bladder cancer (Ta, T1, and CIS), in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 76, p 2447.

Question #25**ANSWER=A**

Aldosterone production and secretion are regulated largely by angiotensin II and by changes in the plasma concentrations of sodium and potassium. The role of ACTH in the control of aldosterone secretion is generally believed to be only permissive, subservient to the renin-angiotensin system and potassium. Direct infusion of potassium and depletion of body sodium are both potent physiologic stimuli for the secretion of aldosterone.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1821.

Question #26**ANSWER=D**

A randomized study demonstrated that stent placement at the time of SWL in patients with 1-2 cm solitary renal stones or proximal ureteral calculi less than 2 cm did not improve stone free or retreatment rates, lessen pain or hematuria. However, stent insertion was associated with an increase in irritative voiding symptoms.

Chandhoke PS, Barqawi AZ, Wernecke C, Chee-awai RA: A randomized trial of ureteral stents for extracorporeal shock wave lithotripsy of solitary kidney or proximal ureteral stones. J UROL 2002;167:1981-1983.

Preminger GM, Tiselius H-G, Assimos DG, et al: 2007 Guideline for the management of ureteral calculi. J UROL 2007;178(6):2418-2434.

Question #27**ANSWER=E**

The standard of care for muscle-invasive bladder cancer is neo-adjuvant chemotherapy followed by radical cystectomy. There are, however, some rare cases where partial cystectomy may be a reasonable option. These occur in patients with good capacity bladders, solitary tumors and location in area that allows a 1- to 2-cm margin of resection, such as the dome. In the case described here, the patient also has CIS elsewhere in the bladder, which is an absolute contraindication to partial cystectomy. Intravesical BCG, while useful in treating CIS, is not adequate treatment for a muscle-invasive lesion.

Nieh PT, Marshall FF: Surgery of bladder cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 78, p 2503.

Question #28**ANSWER=E**

The CT images show a complex mass of the left kidney. This is not simply a renal fracture. Renal tumors, particularly a Wilms' tumor are more susceptible to injury. The child remains stable and therefore does not need to be transfused. A renal arteriogram is premature. This is not a simple renal fracture and therefore exploration and repair is not warranted. The child will need a nephrectomy once stabilized in order to treat her tumor.

Casale AJ: Urinary tract trauma, in Gearhart JP, Rink RC, Mouriquand PDE (eds): PEDIATRIC UROLOGY, Philadelphia, WB Saunders Co, 2001, chap 59, pp 923-943.

Husmann D: Pediatric genitourinary trauma, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 132, p3929.

Question #29**ANSWER=D**

Forniceal extravasation, noted during CT scan, often occurs in the presence of a small, obstructing ureteral calculus. Urine extravasates from a ruptured caliceal fornix into the renal sinus where it is absorbed by lymphatics. Usually, intervention is not necessary except when the urine is infected, the obstruction complete or if the pain is uncontrollable. Moreover, if the calculus is large and not likely to pass, intervention may also be necessary. In this case, the patient has an excellent chance that the stone may pass spontaneously. Therefore, observation initially is warranted.

Lingeman JE, Matlaga BR, Evan AP: Surgical management of upper urinary tract calculi, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 44, p 1451.

Question #30**ANSWER=A**

The NMP22 test is a FDA-approved bladder tumor marker for both diagnosis and surveillance. In patients being followed for bladder cancer with their native bladder intact, it has been shown to have superior sensitivity to urine cytology at least for low-grade tumors. However, it is not useful in patients with urinary diversion due to a high false positive rate. In this example, voided urine cytology and upper tract imaging, both of which are part of routine post-operative surveillance are negative. Given that the patient also has a negative urethra by cystoscopy, no further work-up is needed and routine post-operative cancer surveillance should be continued.

Greene KL, Konety, B: Urinary markers for bladder cancer. AUA UPDATE SERIES 2007, vol 26, lesson 33, pp 326-337.

Question #31**ANSWER=C**

Postganglionic parasympathetic neurons release acetylcholine, which activates muscarinic cholinergic receptors (primarily M2 and M3) on the detrusor and elicits a contractile response. Preganglionic and postganglionic neurons also contain purines such as adenosine triphosphate (ATP) and adenosine which produce depolarization of bladder smooth muscle and contraction by stimulation of purinergic receptors. Nitric oxide, cGMP, VIP, and enkephalins either have no effect on bladder contraction or are inhibitory.

Yoshimura N, Chancellor MB: Physiology and pharmacology of the bladder and urethra, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 56, p 1951.

Question #32**ANSWER=D**

Tubeless PCNL is safe if a limited number of percutaneous accesses are utilized, the stone burden is moderate, bleeding is not excessive, there is a reasonable expectation of a stone free state and no significant collecting system perforation occurs. In this case, neither the size of the stone, the length of the procedure or the blood loss would preclude a tubeless procedure. Likewise, supracostal access is not a contraindication for tubeless PCNL. However, the renal pelvic perforation is most safely handled with percutaneous drainage.

Limb J, Bellman GC: Tubeless percutaneous renal surgery: Review of first 112 patients. UROL 2002;59:527-531.

Question #33**ANSWER=E**

Partial cystectomy is occasionally advocated for patients with muscle invasive bladder cancer at the dome of the bladder. This approach must be used selectively however and is probably inadequate in patients with highly aggressive tumors, like the case described here. He has locally advanced (pT3) disease with positive surgical margins, which portends a worse prognosis. Given this, surveillance alone is not appropriate, nor is intravesical BCG, as the patient has extravesical disease. While bladder sparing protocols are sometimes employed in selected patients, a young healthy patient with the poor prognostic factors warrants aggressive management with extirpative surgery. With current neobladder diversion techniques, his quality of life can be maintained following cystectomy. The major issue is whether this patient will benefit from additional chemotherapy and whether this should be given in the adjuvant or neoadjuvant setting. There is level I randomized clinical trial evidence that neoadjuvant chemotherapy followed by cystectomy improves survival when compared to cystectomy alone. The patient already has pathologically confirmed T3 disease, the next step is to initiate neoadjuvant chemotherapy followed by cystectomy.

Schoenberg MP, Gonzalgo ML: Management of invasive and metastatic bladder cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 77, p 2468.

Question #34

ANSWER=A

The ultrasound demonstrates testicular microlithiasis, a lesion of unknown significance in children. Because it has been associated with tumors in adult testes, serial self-examinations are recommended, although the risk is unknown, and possibly no higher than the general population.

Ritchey ML, Shamberger RC: Pediatric urologic oncology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 130, pp 3900-3901.

Middleton, WD, Teefey, SA, Santillan, CS: Testicular microlithiasis: Prospective analysis of prevalence and associated tumor. RAD 2002;224:425.

Question #35

ANSWER=A

Nearly all ureteral stones less than 4 mm will pass by 40 days. Further assessment of this stone is indicated soon as sufficient time for stone passage has been allowed. There is no definitive evidence that a procedure is indicated at this stage.

Miller OF, Kane CJ: Time to stone passage for observed ureteral calculi: A guide for patient education. J UROL 1999;162:688-690.

Question #36

ANSWER=A

Although there is a small chance of additional benefit from time and/or another induction course of BCG, in the situation of BCG-refractory CIS, radical cystectomy is recommended in patients who can undergo surgery. There is a substantial risk to progression and "adverse consequences of delaying cystectomy make this the preferred treatment." This is especially true in this patient who did not tolerate the BCG. Perioperative mitomycin C or induction and maintenance mitomycin C have little efficacy in this situation. There is little data to support reduction to 1/4 strength BCG.

Hall, MC, Chang, SS, Dalbagni, G, et al: Guideline for the management of nonmuscle invasive bladder cancer. J UROL 2007;178:2314-2330.

Question #37**ANSWER=E**

Renal and ureteral impairment in BPH are related to high pressure chronic retention. High voiding pressures if not sustained for long periods do not usually induce ureteral changes nor renal functional impairment. While compression of the ureter at the ureterovesical junction might impair ureteral urine delivery to a degree, sustained bladder pressure elevations are required for the upper tract abnormalities described. VUR also results from the high pressures.

Pais VM Jr, Strandhoy JW, Assimos DG: Pathophysiology of urinary tract obstruction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 37, p 1198.

Question #38**ANSWER=B**

Colonic injury occurs during PCNL when the colon occupies a retro-renal location. Since the injury is typically retroperitoneal, withdrawal of the nephrostomy tube into the colon and placement of an internal ureteral stent provides maximum drainage of the kidney and colon and allows the colonic and renal injuries to heal within a few days to a week.

Gupta M, Ost MC, Shah JB, McDougall EM, Smith AD: Percutaneous management of the upper urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 46, p 1548.

Question #39**ANSWER=C**

A meta-analysis of seven randomized trials comprising nearly 1500 patients with Ta-T1 bladder cancer with a median follow up of 3.4 years has demonstrated that one immediate instillation of chemotherapy after TURBT results in a 40% reduction in tumor recurrence. Patients with single and multiple tumors benefit and tumor size did not stratify patients who benefited. The timing of instillation appears to be critical. In all studies, the instillation was given within the first 24 hrs. One study has demonstrated that if the instillation is given after 24 hours, the risk of recurrence increases 2-fold. In terms of efficacy, no specific drug appears superior. Studies have shown mitomycin C, doxorubicin, epirubicin and thiotepa to be beneficial. Perioperative instillation is contraindicated in the setting of overt or suspected extra or intraperitoneal perforation as severe complications have been reported in that setting. In the meta-analysis, it was determined that approximately eight patients would require treatment to prevent one recurrence that would translate into a cost effective strategy using any of the commonly available intravesical chemotherapy agents. Mitomycin C is most effective in the setting of alkaline urine.

Sylvester R, Oosterlinck W, van der Meijden A: A single immediate postoperative instillation of chemotherapy decreases the risk of recurrence in patients with stage Ta T1 bladder cancer: a meta-analysis of published results of randomized clinical trials. J UROL 2004;171:2186-2190.

Question #40

ANSWER=D

LH-RH analogues down regulate pituitary cell LH-RH cell surface receptors and totally block LH release and synthesis. Leydig cells may experience an upregulation of LH receptors, but there is no LH available for binding. The production of dehydroepiandrosterone and androstenedione, the principal adrenal androgens, is regulated by ACTH. Both of these adrenal androgens can be converted to testosterone peripherally but constitute no more than 10% of total testosterone. Manipulations of the LH-RH Leydig cell axis do not affect adrenal androgen production. Peripheral conversion of androgens to estrogens is unidirectional.

Nelson JB: Hormone therapy for prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 104, p3089.

Question #41

ANSWER=E

Reninomas are rare renal tumors associated with hypertension, hypokalemia, and a solid small renal mass. The critical test is plasma renin activity that is usually extremely high. Almost all are shown on CT scan as a hypodense mass that is hypovascular. In most cases, it is not necessary to control the renal pedicle and an arteriogram is not mandatory. The patient should be treated with nephron sparing surgery, i.e. resection or partial nephrectomy because these tumors are benign in nature.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, p 1582.

Question #42

ANSWER=C

Dehydration would usually present at the time of induction of anesthesia. Although sepsis is possible, it is unlikely to be acute. Unrecognized bleeding or pressure on the vena cava are unlikely given the operative exposure. Autonomic dysreflexia is seen in high-level spinal cord injury patients and is associated with hypertension. Increasing numbers of patients with myelodysplasia are allergic to latex. Latex precautions should be considered in all myelomeningocele patients.

Montagnino B: Nursing intervention in pediatric urology, in Gearhart JP, Rink RC, Mouriquand PDE (eds): PEDIATRIC UROLOGY. Philadelphia, WB Saunders, 2001, pp 270-271.

Cremer R, Lorbacher M, Hering F, Engelskirchen R: Natural rubber latex sensitization and allergy in patients with spina bifida, urogenital disorders, and esophageal atresia compared with normal pediatric population. EUR J PED SUR 2007;17:194-198.

Question #43

ANSWER=D

While low levels of pituitary gonadotropins are associated with Kallman's syndrome (absent gonadotropins, anosmia and midline defects), they are not associated with Klinefelter's syndrome where they are markedly elevated. The hormone pattern is not associated with either bioinactive LH (where levels are normal but LH is non-functional) or Kartagener syndrome. The suppressed gonadotropins, associated with good virilization and normal testosterone levels are a classic finding in men using exogenous testosterone.

Schlegel PN, Hardy MP, Goldstein M: Male reproductive physiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 18, pp 577-578.

Question #44

ANSWER=B

Perioperative coronary stent thrombosis is a catastrophic complication that can occur in patients receiving both bare-metal and drug-eluting stents. Noncardiac surgery and most invasive procedures increase the risk of stent thrombosis especially when the procedure is performed early after stent implantation. This is because stents are not yet endothelialized early after placement, antiplatelet therapy is often discontinued in the periprocedural period, and surgery creates a prothrombotic state. Avoidance of preoperative revascularization or stent implantation, appropriate stent type selection when stent implantation cannot be avoided, delay of noncardiac surgery, continuation of antiplatelet therapy in the perioperative period, and increased collaboration between different disciplines (surgery, anesthesiology, and cardiology) all can help minimize the risk of perioperative stent thrombosis. If surgery needs to be performed within 12 months from revascularization, then bare metal stent implantation is likely preferable to drug eluting stents, because bare metal stents endothelialize more rapidly and may therefore carry a lower risk of stent thrombosis. The risk of late stent stenosis less than six weeks after placement of a bare metal stent ranges from 3.9-5%. Thus withdrawal of antiplatelet therapy may be considered after six weeks.

Brilakis ES, Banerjee S, Berger PB: Perioperative management of patients with coronary stents. J AM COLL CARDIOL 2007;49:2145-2150.

Question #45**ANSWER=C**

This child has massive grade V reflux into the right kidney. No information is available from the VCUG about the left kidney or the function of the right kidney. The abnormal calyces on the VCUG suggest that the function may be less than optimal. A renal scan is most sensitive to determine split function, which will help determine whether reconstruction versus nephrectomy is suitable. An MR urogram will also give this information, however, the MR will mostly likely require either a general anesthetic or closely monitored sedation. A voiding diary will be not be particularly helpful with the massive reflux. Creatinine clearance may be abnormal but it will not be possible to tell which kidney has the deficit.

Khoury A, Bagli DJ: Reflux and megaureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 117, p3436.

Question #46**ANSWER=A**

The majority of spermatozoa in the human ejaculate is stored in the ampulla of the vas. Less than half is stored in the cauda epididymis. Of the spermatozoa stored within the epididymis, half are in the cauda. At ejaculation there is discharge of spermatozoa from the distal epididymis, proximal vas and the vasal ampulla.

Schlegel PN, Hardy MP, Goldstein M: Male reproductive physiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 18, pp 606-607.

Question #47**ANSWER=B**

The amount of radiation energy transferred to an object is different than the relative damage that a particular kind of radiation can cause. The gray describes the property of radiation representing the amount of energy transferred to an object. The units of rad and gray are proportional, with 100 rads equaling 1 gray. A different type of unit estimates biological cell damage, and is the sievert. Like rad and gray, the units of rem and sievert are proportional, with 100 rems equaling 1 sievert. The maximum annual whole-body radiation exposure recommended by the National Council on Radiation Protection is 5 rem. The becquerel measures radioactive decay, with 1 becquerel corresponding to 1 disintegration per second.

Gupta M, Ost MC, Shah JB, McDougall EM, Smith AD: Percutaneous management of the upper urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 46, p 1531.

Question #48**ANSWER=E**

Experimental studies have shown that the augmented bowel segment receives collateral blood flow from the native bladder. Interruption of the vascular pedicle may cause some decrease in the size of the augmented segment, but the neobladder remains intact. Intraoperative assessment of blood flow to the augmented segment immediately after ligation of the pedicle demonstrates decreased perfusion. However, perfusion returns to normal after eight weeks. Observation of the patient with repeat urodynamic studies is indicated. If this shows a significant decrease in functional capacity, consideration can be given to revision of the ileocystoplasty. Primary revision with sigmoid in this patient would be ill advised without a bowel prep. There should be no need for a suprapubic tube as extravasation is not likely. Immediate re-augmentation may not be indicated unless there is a demonstrable reduction in capacity or compliance.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 124, p 3686.

Question #49**ANSWER=C**

Most investigators feel that stretching of the ureteral wall initiates and propagates ureteral peristalsis. Because the ureteral smooth muscle cells have numerous close contacts between them, muscular contraction is propagated along the ureter by these muscle cell connections. A bolus of urine does appear to be the primary stimulus for ureteral peristalsis. The autonomic nervous system does not appear to stimulate ureteral peristalsis. A completely denervated ureter, as is seen in renal transplantation, exhibits peristalsis immediately upon transplantation. Increased intravesical pressure is not a primary stimulus for ureteral peristalsis.

Weiss RM: Physiology and pharmacology of the renal pelvis and ureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 55, pp 1907-1908

Question #50**ANSWER=B**

A testosterone:estradiol ratio of less than 5:1 in a male is strongly suggestive of aromatase dysfunction, and is treated with aromatase inhibition including anastrozole 1 mg p.o. daily or 50 to 100 mg testolactone twice daily. Clomiphene citrate would increase both testosterone and estradiol but the ratio would remain unchanged. Cabergoline is a prolactin inhibitor, and exogenous testosterone would suppress spermatogenesis.

Raman JD, Schlegel PN: Aromatase inhibitors for male infertility. J UROL 2002;167:624-629.

Question #51**ANSWER=D**

This child has a normal right kidney and classic left multicystic kidney. The lucencies seen on the right are due to normal renal pyramids. Parental evaluation could be considered if the child had autosomal dominant polycystic kidney disease. Hepatic fibrosis is associated with autosomal recessive polycystic kidney disease. Spinal abnormalities, cardiac defects, and coarctation of the aorta are not associated with a multicystic kidney. Vesicoureteral reflux is found in approximately 20-40% of children with a multicystic kidney. Renal scintigraphy is required to evaluate left renal function and confirm nonfunction.

Glassberg KI: Renal dysgenesis and cystic disease of the kidney, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 114, p 3337.

Question #52**ANSWER=B**

After the initial acute episode during which acute urinary retention is common, a variable degree of recovery occurs and any residual neurological deficit becomes apparent over a few weeks or months. During this period symptoms of persistent bladder dysfunction may become apparent. A problem with impaired voluntary urinary control will generally have detrusor overactivity as a urodynamic correlate with symptoms of frequency, nocturia and urgency with or without urge incontinence. The bladder-neck opens normally with the involuntary bladder contraction, and the striated sphincter is synergic unless the patient tries to voluntarily inhibit the bladder contraction by forcibly contracting the striated sphincter. Detrusor-striated sphincter dyssynergia is extremely rare or non-existent in patients with isolated lesions above the brain stem.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, p 2015.

Question #53**ANSWER=E**

Serum testosterone circulates in three forms. Approximately 2% is free, 30% is tightly bound to sex hormone binding globulin (SHBG,) and the remainder (approximately 68%) is loosely bound to albumin and other serum proteins. Free and bioavailable testosterone may be accurately calculated by albumin and SHBG values. In this patient, while the total testosterone is slightly low at 290 ng/dl, free testosterone is well above 2% and bioavailable testosterone is well above 68% at 75.8%. Normal bioavailable testosterone concurrently existing with low total testosterone is commonly encountered in men with obesity. As an endocrine etiology is unlikely in this patient with depression and low libido, psychiatric referral is indicated. LH assay is not indicated as bioavailable testosterone is adequate, and FSH assay reveals seminiferous epithelial function which is not of interest in this case. In a patient with a normal physical

examination other than obesity, Cushing's syndrome is unlikely, and morning urinary **Cortisol** assay is not indicated. With prolactin in the normal range, a pituitary tumor is unlikely, and cranial MRI scan is not indicated. In a patient with depression, loss of libido and adequate bioavailable testosterone, psychiatric referral should be undertaken prior to testosterone therapy.

Sokol RZ, Swerdloff RS: Endocrine evaluation, in Lipshultz LI, Howards SS (eds): *INFERTILITY IN THE MALE*, ed 3. St. Louis, Mosby Year-Book Inc, 1997, chap 11, p 211.

Lue TF, Broderick GA: Evaluation of nonsurgical management of erectile dysfunction and premature ejaculation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): *CAMPBELL'S UROLOGY*, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 22, p 767.

Question #54

ANSWER=C

This girl is likely to have post-operative ureteral stenosis with azotemia. Decompression will be necessary to medically stabilize her before reconstruction. This is most reliably accomplished by percutaneous nephrostomies which will not interfere with ultimate surgical revision of the ureterovesical anastomosis. Cystoscopy and ureteral catheterization is an option but can be technically challenging in the setting of post reimplant obstruction, especially when the previous reimplantation was performed in a cross-trigonal fashion. A diuretic renal scan may further confirm the diagnosis of obstruction but will not change the need for immediate relief of the obstruction in this septic patient. In addition, the renal scan may be less accurate in the setting of azotemia. Cutaneous vesicostomy will not address the ureteral obstruction and loop ureterostomies will complicate future surgery to correct the ureteral obstruction.

Brock III J, Dimarco R: Surgery for vesicoureteral reflux, in Docimo SG, Canning DA, Koury AE (eds): *CLINICAL PEDIATRIC UROLOGY*, ed 5. London, Informa Healthcare, 2007, p 683.

Question #55

ANSWER=B

Transient, self limited lower extremity pain following transobturator sling procedures occurs in 2-16% of patients undergoing this procedure. This symptom is usually attributed to a subclinical hematoma or a transient neuropathic phenomenon but may also be due to positioning. This generally resolves within several days and NSAIDs will help control the temporary pain. Persistent pain may indicate vaginal extrusion, thigh abscess or other complications related to the tape.

Dmochowski R, Scarpero H, Starkman J: Tension-free vaginal tape procedures, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): *CAMPBELL'S UROLOGY*, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 68, p 2269.

Question #56**ANSWER=A**

This patient presents with a classic scenario of ovarian remnant syndrome. Residual ovarian tissue after oophorectomy will cyclically enlarge and result in symptomatology. This condition most commonly occurs after ovarian rupture during oophorectomy for endometriosis. Ureteral obstruction occurs in 5-10% of cases. Surgical excision of the mass should be curative while leuprolide depot can be effective in recurrent cases. Reimplantation and ureterolysis are not indicated for obstruction due to external compression by the ovarian remnant. Tamoxifen is not effective in controlling ovarian enlargement.

Koch MO, Coussens D, Burnett L: The ovarian remnant syndrome and ureteral obstruction: Medical management. J UROL 1994; 152,158-160.

Question #57**ANSWER=D**

While all of the factors listed can produce hydronephrosis, a LPP of > 40 cm of water, if left untreated, has uniformly been associated with progressive hydronephrosis. High grade reflux is most likely secondary to the neurogenic bladder. Patients with an elevated LPP should be treated aggressively with CIC and antimuscarinics to prevent hydronephrosis. If this is not successful augmentation cystoplasty maybe indicated in the older patient and vesicostomy in the neonate or infant.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, p 3634.

Question #58**ANSWER=D**

This patient likely has multiple system atrophy (MSA) with rapidly progressive parkinsonism and long standing ED. Incontinence is due to severely impaired emptying and sphincteric dysfunction. Finasteride is unlikely to be helpful with a normal size prostate, and there is no evidence to suggest that an alternative alpha-blocker will be more efficacious. While urodynamics are consistent with moderate obstruction, prostate resection/treatment is unlikely to improve bladder emptying in patients with MSA and is associated with a prohibitive risk of worsening incontinence. Though incontinence is noted on urodynamics, it is only with a full bladder. If the patient has support to help with CIC, that should be initiated.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, p 2021.

Question #59**ANSWER=E**

The clinical findings are consistent with a **CO₂** embolism. This can lead to tachycardia, cardiac arrhythmias, hypotension, increased central venous pressure, hypoxemia, a "mill wheel" heart murmur and cyanosis. Treatment consists of immediate cessation of insufflation and release of the pneumoperitoneum. The patient should be placed head down in a left lateral decubitus position. Discontinuing nitrous oxide allows ventilation with 100% O₂ thus reducing hypotension. Hyperventilation facilitates elimination of CO₂. If these measures are not successful, a central venous catheter can be inserted to aspirate gas. Cardiopulmonary bypass may be used to treat patients with a massive **CO₂** embolism and hyperbaric oxygen therapy should be considered if a cerebral gas embolism is suspected.

Joris JL: Anesthesia for laparoscopic surgery, in Miller RD (ed): ANESTHESIA, ed 5. Philadelphia, Churchill Livingstone, 2000, vol 2, chap 56, pp 2003-2008.

Question #60**ANSWER=A**

This infant has a compromised urinary tract and a neurogenic cause must be considered. The conus normally ends above L2 and spinal ultrasound is a convenient and accurate method of screening in the neonatal period. Given his low conus, a CMG would be important to see if filling curve and storage pressure are abnormal. Circumcision is not mandatory. Vesicostomy at this point is premature and cystoscopy is not necessary. The hydronephrosis in this case is related to the bladder dysfunction and a MAG-3 scan is unnecessary.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, pp 3625-3632.

Question #61**ANSWER=B**

Parkinson's disease results in relative dopamine deficiency and cholinergic predominance in the corpus striatum. Voiding dysfunction may occur in up to 70% of patients. The most frequent urodynamic finding is detrusor overactivity. Poor voluntary control of the striated sphincter may occur, but true dyssynergia is uncommon. Male patients with prostatic enlargement cannot be assumed to be symptomatic from bladder outlet obstruction, and voiding symptoms may actually worsen after prostatectomy because of poorly sustained bladder contractions and abnormal sphincter relaxation.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, pp 2017-2018.

Question #62**ANSWER=C**

This patient has an ectopic ureter to the bladder neck. Substantial left upper pole parenchyma is seen on ultrasound, and upper pole function is documented on renal scan. Chemoprophylaxis is not a good long-term solution. It may prevent infection in the short-term but will not address the congenital abnormal ureteral insertion. Upper pole nephrectomy is not indicated since function in the upper pole is acceptable. The least morbid solution is a low uretero-ureterostomy that does not require manipulation of the bladder either intravesically or extravesically.

Schluskel RN, Retik AB: Ectopic ureter, ureterocele, and other anomalies of the ureter, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 58, p 2007.

Question #63**ANSWER=D**

Successful toilet training involves achievement of an adult pattern of urinary control and depends on the outcome of at least three separate events in the development of the bladder. First, bladder capacity must increase to serve as an adequate reservoir. Second, voluntarily control over the periurethral striated muscle sphincter must occur. Finally, direct central control over the spinal reflex that controls the detrusor smooth muscle must develop to voluntarily initiate or inhibit detrusor contraction. By the age of 4, most children have matured their urinary tract function and have developed an adult pattern of urinary control. The adult pattern is characterized during bladder filling by an absence of unstable or overactive detrusor contractions.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, pp 3605-3607.

Question #64**ANSWER=C**

Intravesical erosion of synthetic tapes have been reported and are either missed intraoperative perforations or they occur due to pressure necrosis with penetration of the bladder wall. The recommended treatment is removal of the foreign body from the bladder. Extraction of the intravesical portion through a suprapubic cystotomy results in disappearance of all symptoms. Complete removal of the tape is very difficult and may result in recurrent stress urinary incontinence. Cystolitholapaxy will not remove the tape leaving a persistent foreign body and nidus for recurrent stone formation and UTIs. Transvaginal cystotomy risks postoperative vesicovaginal fistula formation and using this operative approach it will be difficult to access the anterior bladder wall. Cystolitholapaxy will be unnecessary if the surgeon is planning a retropubic exploration.

Dmochowski R, Scarpero H, Starkman J: Tension-free vaginal tape procedures, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 68, p 2263.

Tsivian A, Kessler O, Mogutin B, et al: Tape related complications of the tension-free vaginal tape procedure. J UROL 2004;171:762-764.

Question #65

ANSWER=E

Hyperplastic tissue can sometimes protrude through endoluminal stents postoperatively. Careful resection of this tissue is often effective, as this hyperplastic reaction usually subsides over time. Balloon dilation is unlikely to be effective in alleviating obstruction due to luminal occlusion; unlike vascular plaques, the scar tissue associated with strictures is not compressible. Stent replacement at three months will be extremely difficult; likewise urethroplasty will require excision of the stent, with a high likelihood for substitution urethral reconstruction. Suprapubic cystostomy is only a temporizing measure that is not indicated in the absence of urinary retention.

Jordan GH: Urolume endoprosthesis for the treatment of recurrent bulbous urethral stricture. AUA UPDATE SERIES 1999, vol 19, lesson 3, pp 18-23.

Heisenberg ML, Elliott SP, McAninch JW: Management of restenosis after urethral stent placement. J UROL 2008;179:991-995.

Question #66

ANSWER=D

The best treatment in this situation is the pubovaginal sling. An advantage of the sling procedure for postpuberal females is that the dissection between the urethra and the vagina can be performed transvaginal[^], an approach considered by many to be simpler than pelvic dissection required for placement of an artificial urinary sphincter. Bladder neck tubularization produces a significant reduction in bladder capacity and the frequent necessity for reoperations to correct problems with catheterization. Periurethral bulking agents can provide short-term improvement, however the long-term effectiveness remains open to question. A Mitrofanoff procedure will not solve the problem of low outlet resistance.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 124, p 3665.

Question #67

ANSWER=A

Obtaining accurate information from duplex Doppler ultrasound requires that the patient obtain an erection similar in quality to his best quality spontaneous (non-medication assisted) erection at home. If this is not achieved, the concern is that sympathetic over-

activity may result in falsely abnormal erectile hemodynamics. The patient in this case has abnormal peak systolic velocities, however, he failed to obtain a sufficient erection to accurately assess his erectile history. Therefore, he should receive another dose of vasoactive agent intracavernosally. It has been estimated that greater than 50% of men will require more than one dose of intracavernosal vasoactive agent during erectile hemodynamic assessment.

Mulhall JP, Abdel-Moneim A, Abobaks R, Goldstein I: Improving the accuracy of vascular testing of the impotent male: Correction of hemodynamic alterations using a vasoactive medication redosing schedule. J UROL 2001;166:923-926.

Question #68

ANSWER=C

Patients with cystic fibrosis are at risk for developing nephrolithiasis. The metabolic defects most commonly encountered in this patient population include hypocitraturia and hyperoxaluria, due to increased gastrointestinal oxalate absorption and rapid intestinal transport. Several measures can be taken to attenuate stone activity including increased fluid intake, administration of pancreatic enzymes, a low fat and low oxalate diet, and potassium and calcium citrate therapy. Studies demonstrate hypercalciuria and hyperuricosuria are not encountered as commonly in these patients.

Perez-Brayfield, Caplan D, Gatti JM, Smith EA, Kirsch AJ: Metabolic risk factors for stone formation in patients with cystic fibrosis. J UROL 2002;167:480-484.

Question #69

ANSWER=C

Cushing's disease is different than Cushing's syndrome. Cushing's disease is due to increased **Cortisol** production by any cause (pituitary adenoma, ectopic ACTH, and adrenal adenoma). Patients with adrenal Cushing's syndrome have autonomous adrenal production of **Cortisol**, which suppresses ACTH. Exogenous administration of either low-dose or high-dose dexamethasone is unable to alter the autonomous adrenal production. Therefore, it results in no change in either ACTH or urinary free **Cortisol**. For pituitary adenomas, high-dose dexamethasone is capable of suppressing ACTH and urinary free **Cortisol** production.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1834.

Goldfarb DA: Contemporary evaluation and management of Cushing's syndrome. WORLD J UROL 1999;17:22-25.

Question #70**ANSWER=C**

The purpose of a shunt procedure for venocclusive priapism is to oxygenate the penis. Often residual corporal smooth muscle paralysis and edema will leave the patient's penis tumesced and sometimes rigid. Following an Al-Ghorab shunt, grasping the penis at its base and squeezing will reduce arterial inflow and should result in detumescence, if the shunt is open. Confirmation can be made by drawing a blood gas and proving arterial oxygen levels. This should be done before returning to the operating room for a second procedure. An alternative approach would be to perform a penile duplex ultrasound to demonstrate any arterial inflow.

Burnett AL: Priapism, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 26, p 839.

Question #71**ANSWER=E**

The patient is asymptomatic and her kidney is unobstructed; hence there is no reason to surgically treat her urolithiasis. Patients with hyperparathyroidism who need therapy for their stones can be treated either at the time of their parathyroid surgery or after the neck surgery. If the stones are removed prior to parathyroid surgery, they may recur in the interval between the stone procedure and the neck exploration. Furthermore, SWL is of little benefit in resolving problems of nephrocalcinosis; while it may decrease the stone burden, it alone will not render the patient stone free. Also, as a result of elective SWL therapy, the patient may actually become symptomatic. Simultaneous bilateral SWL is associated with a permanent decrease in total estimated renal plasma flow of 10%. Patients with hyperparathyroidism seldom have any other underlying abnormality making them prone to stone formation; as such, in the absence of stone growth, there is no reason to repeat the metabolic evaluation in this patient after stone removal. Indeed, the best policy in the asymptomatic patient with hyperparathyroidism and urolithiasis is to just observe them following their subtotal parathyroidectomy. The solitary calyceal stones as well as the nephrocalcinosis will dissolve or disappear spontaneously over a 10-year period in 75% of patients.

Pietrow PK, Preminger GM: Evaluation and medical management of urinary lithiasis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 43, p 1420.

Question #72**ANSWER=A**

The duodenum is supplied by the pancreaticoduodenal and the gastroduodenal arteries which arise from the celiac trunk. All of the other bowel segments are supplied by branches of the superior mesenteric artery. Although ligation of the superior mesenteric artery, may not result in ischemic changes, assessment of bowel viability should be done. Primary repair of the vessel should be undertaken if feasible.

Moore KL, Dalley AF, Agur AMR: The abdomen, in CLINICALLY ORIENTED ANATOMY, ed 5. Philadelphia, Lippincott Williams & Wilkins, 2006, chap 2, p 274.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, pp 2534-2535.

Question #73

ANSWER=B

Orgasmic pain or dysorgasmia occurs in a distinct minority of men after radical prostatectomy. This pain is located in the penis, testicles, perineum or abdomen and while usually of nuisance level, it can be incapacitating leading to avoidance of sexual relations. This pain may also occur after prostate radiation and in chronic pelvic pain syndromes. The condition is believed to result from bladder neck spasm. It is responsive to uroselective alpha-blockers. Cyclobenzaprine and diazepam are skeletal muscle relaxants. There is no role for gabapentin or cystoscopy in these patients.

Barnas J, Parker M, Guhring P, Mulhall JP: The utility of tamsulosin in the management of orgasm-associated pain: A pilot analysis. EUR UROL 2005;47:361-365.

Nickel JC, Narayan P, McKay J, Doyle C: Treatment of chronic prostatitis/chronic pelvic pain syndrome with tamsulosin: a randomized double blind trial. J UROL 2004;171:1594-1597.

Question #74

ANSWER=A

With sperm in the vas and a patent abdominal vas deferens, right vasovasostomy is indicated. For men with a brief (< 10 years) obstructed interval or clear fluid in the vas deferens, the prognosis for return of sperm to the ejaculate is excellent after vasovasostomy alone, despite intravasal azoospermia. Epididymal exploration and intraoperative testis biopsy will not provide material information to affect treatment decisions. Varicocelectomy and vasovasostomy should not be performed simultaneously, as venous outflow from the testis after varicocele repair is dependent primarily on the vasal vessels that are divided during vasectomy or vasovasostomy, and testicular atrophy may result.

Lipshultz LI, Thomas AJ Jr, Khera M: Surgical management of male infertility, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 20, p 681.

Question #75

ANSWER=B

Cranially, the left kidney is bordered by the adrenal retroperitoneally and the spleen intraperitoneally along the superior and lateral borders of the upper pole. With excessive downward traction on the left kidney, as may occur with a percutaneous

procedure, tension on the splenorenal ligament may result in a subcapsular splenic tear. The tail of the pancreas, also retroperitoneal, crosses the upper pole of the left kidney as well. More caudally and anteriorly, the kidney is bordered by the splenic flexure of the colon, which requires medial mobilization to expose the hilum of the kidney. Intraperitoneal structures that abut the left kidney are the jejunum and spleen. Posteriorly, the upper 1/3 of the kidney - both right and left - lies on the inferior aspect of the diaphragm. Other muscular structures surrounding the kidney include the psoas muscle along its lower medial aspect, the quadratus lumborum laterally, along with the transverse abdominis aponeurosis. The lower poles of each kidney lies laterally and anteriorly compared to the upper pole, such that in the supine position, the upper pole is the more dependent pole. These relationships are particularly important when considering percutaneous access to stones in particular calyces.

Anderson JK, Kabalin JN, Cadeddu JA: Surgical anatomy of the retroperitoneum, adrenals, kidneys, and ureters, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 1, p 26.

Question #76

ANSWER=E

In patients who have obstruction and detrusor overactivity relief of the obstruction will generally result in resolution of the detrusor overactivity. Although antimuscarinics may help the patient's symptoms, they do not treat the underlying problem. 5-alpha-reductase inhibitors reduce prostate volumes and modestly improve symptoms but may not treat the underlying obstruction and will take four to six months to achieve the maximal effect in this bothered patient. CIC will not treat the underlying problem of bladder outlet obstruction. TUMT is not as effective as TURP in improving the objective signs of outflow obstruction as evidenced by this man's persistent obstruction.

Fitzpatrick JM: Minimally invasive and endoscopic management of benign prostatic hyperplasia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 88, pp 2819-2821

Roehrborn CG, McConnell, JD, Barry MJ, et al: Guideline on the management of benign prostatic hyperplasia. AUA Education and Research, 2003, p 28

Question #77

ANSWER=D

Percutaneous radiofrequency ablation of small renal masses has been offered in recent years as a non-invasive method of treatment. Treatment efficacy is generally determined by follow-up CT or MRI scan evaluating for enhancement within the lesion. If enhancement is noted, this is considered suggestive of residual or recurrent tumor. In most series, between 5-20% of patients treated by radiofrequency ablation require re-treatment within the first year due to persistent enhancement. While long-term data is not available, those patients undergoing a second ablative procedure appear to have a similar outcome to those treated effectively in the first ablation. While partial

nephrectomy could be considered in this patient, the frequency of persistent enhancement after the first ablation suggests that a second ablation is warranted prior to proceeding with more aggressive therapy. Biopsy is not indicated in this patient given the fact that the previous ablation may obscure histologic interpretation and that the biopsy outcome would not likely influence the desire to complete treatment. PET scan would not be informative in this case. As the enhancement likely represents residual tumor, it is not likely to abate with continued observation.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, p 1567.

Marberger M, Mauermann J: Ablative therapy of renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 52, p 1810.

Question #78

ANSWER=D

The three layers of the adrenal cortex from peripheral to central are the zona glomerulosa, zona fasciculata, and the zona reticularis. Central to the adrenal cortex is the adrenal medulla which is of neural crest origin and involved in the secretion of epinephrine and norepinephrine. The adrenal cortex is of mesodermal origin. The zona reticularis produces androgens, the zona fasciculata produces glucocorticoids and the zona glomerulosa produces mineralocorticoids, which regulate sodium reabsorption from multiple organs. All of these adrenal cortical functional end products are derived from a common precursor, cholesterol. Since the embryologic origins of the adrenal gland and the kidney are different, in cases of renal ectopia the adrenal gland maintains its respective orthotopic position.

Anderson JK, Kabalin JN, Cadeddu JA: Surgical anatomy of the retroperitoneum, adrenals, kidneys, and ureters, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 1, p 19.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1825.

Question #79

ANSWER=D

The diagnosis of non-ischemic priapism can be confirmed by using duplex Doppler ultrasonography. While the mechanism of injury may guide the clinician to the location of the arterio-corporal fistula, perineal or penile, the ultrasound should assess the penis and perineum. Ultrasonography of the penis to assess cavernosal artery morphology

and dynamics is conducted on the ventral surface of the penis in a sagittal, para-urethral plane.

Burnett AL: Priapism, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 26, p 845.

Question #80

ANSWER=A

Temsirolimus is a specific inhibitor of the mammalian target of rapamycin (mTOR) kinase - a component of intracellular signaling pathway involved in growth and proliferation of cells. Level I evidence in a recent study comparing temsirolimus, interferon alpha or both RCC focused on poor risk candidates. The patients had at least three of the poor risk features: LDH > 1.5 times upper level, Hgb below normal, calcium > 10 mg/dl, time from diagnosis of cancer > 12 months, metastases in multiple organs, and/or Karnofsky score = 60 or 70. This patient has multiple features that puts him in a poorer risk group: multiple sites of metastasis, anemia and hypercalcemia. Intravenous weekly infusion of temsirolimus when compared to interferon prolongs overall survival, the first agent that has demonstrated an overall survival advantage. Sunitinib and sorafenib have been shown to improve progression free survival, but not overall survival and not in this particular patient with multiple poor risk features.

Hudes G, Carducci M, Tomczak P, et al: Temsirolimus, interferon alfa, or both for advanced renal cell carcinoma. NEJM 2007;356:2272-2281.

Question #81

ANSWER=A

The superior mesenteric artery (SMA) provides blood supply to the terminal ileum (distal six inches), appendix, ascending colon and transverse colon through the ileocecal (ileum, appendix and cecum), right (ascending colon), and middle (transverse colon) colic arteries. A separate mesentery exists from the ileocecal artery to the appendix allowing for the appendix to be separated from the cecum but maintain its blood supply for implantation into the bladder or another bowel segment. The mesentery of the appendix can be "windowed" for imbrication of the cecum around the appendix as is accomplished with the antegrade continence enema (ACE) procedure. The marginal artery of Drummond completes an anastomosing arcade between the middle colic artery of the SMA and the left colic artery of the inferior mesenteric artery, allowing for separation and mobilization of various segments of the large bowel for reconstructive purposes. The right colic artery most often arises directly from the SMA which can limit the mobilization of the cecum and right colon into the pelvis, at times requiring division of the right colic artery. When the right colic artery arises as a branch of the ileocecal artery mobilization of the cecum and right colon is considerably easier.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, p 2536.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 124, pp 3694-3695.

Question #82

ANSWER=E

In men with recurrent bouts of priapism and concerned about their sexual function, the use of an LH-RH agonist is problematic. In this situation, training the patient to use intracavernosally delivered phenylephrine is advisable. For a man of any age who is not concerned about sexual function, the use of an LH-RH agonist has been shown to be of benefit. The literature supporting the use of oral terbutaline, digoxin, or baclofen is anecdotal.

Lue TF, Broderick GA: Evaluation of nonsurgical management of erectile dysfunction and premature ejaculation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 22, p 750.

Question #83

ANSWER=E

This patient has a symptomatic renal mass and a very poor prognosis. His poor performance status and a bone metastasis make it very unlikely that he will respond to therapy with biological modifiers. Percutaneous embolization of the mass should control the hematuria and also palliate his flank pain. Neither systemic IL-2 nor oral sunitinib will control the patient's intractable hematuria, which must be addressed as a first step in palliation. A diverting colostomy is not indicated unless obstruction develops and a palliative nephrectomy is likely to be excessively morbid in this patient with such a poor prognosis. Cytoreductive nephrectomy is not indicated before immunotherapy for patients with poor performance status and visceral metastases.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, p 1620.

Question #84

ANSWER=E

The genitofemoral nerve lies on the anterior aspect of the psoas muscle and is often used as the landmark for the lateral margin of the dissection for a pelvic lymphadenectomy. The genitofemoral nerve supplies sensation to the anterolateral scrotum and the anterior thigh and has no motor innervative functions. The femoral nerve lies deep in the psoas muscle and is, therefore, less often injured during a pelvic lymphadenectomy. It has both sensory and motor functions, supplying sensation to the medial and anterior thigh and motor innervation to the quadriceps muscle which facilitates hip flexion. Injury to the obturator nerve, which lies posterior to the iliac

artery, results in the inability to adduct the thigh. The obturator nerve, however, is easier seen and palpable due to its size, compared to the genitofemoral nerve.

Anderson JK, Kabalin JN, Cadeddu JA: Surgical anatomy of the retroperitoneum, adrenals, kidneys, and ureters, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 1, p 18.

Question #85

ANSWER=A

Chromatopsia is the loss of color vision (blue halo effect) and is related to cross reactivity with PDE6. Non-arteritic ischemic optic neuropathy (NAION) is associated with PDE5 inhibitor use, but there is no robust evidence supporting causality. This condition is related to ischemia of the optic nerve. PDE5 inhibitors are associated with no alterations in visual acuity or electroretinography.

Lue TF, Broderick GA: Evaluation of nonsurgical management of erectile dysfunction and premature ejaculation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 22, p 774.

Question #86

ANSWER=D

The wild type VHL tumor suppressor gene product suppresses the expression of vascular endothelial growth factor (VEGF), a potent stimulator of angiogenesis, through downregulation of hypoxia-inducible factor 1 (HIF1). Mutation or loss of the VHL tumor suppressor gene leads to dysregulated expression of VEGF, which contributes to the neovascularity associated with RCC. This pathway is of critical importance to practicing urologists as most recently developed tyrosine kinase inhibitors target the pathway directly or indirectly.

Walther MM, Enquist EG, Jennings SB, et al: Molecular genetics of renal cell carcinoma, in Vogelzang NJ, Scardino PT, Shipley WU, Coffey DS (eds): COMPREHENSIVE TEXTBOOK OF GENITOURINARY ONCOLOGY. Baltimore, Williams & Wilkins, 2000, chap 9, pp 116-128.

Neumann HP, Zbar B: Renal cysts, renal cancer and von Hippel-Lindau disease. KID INTL 1997;51:16-26.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, p 1629.

Question #87**ANSWER=D**

Genitourinary manifestations of sexual abuse in children are many and straddle injuries often can be confused with abuse. A straddle injury under nine months of age is a "red flag" of abuse in that children of that age are not ambulatory. The possibility of sexual abuse should be considered as a result of associated symptoms including rectal, vaginal or penile pain (in boys), discharge or bleeding or chronic dysuria, enuresis, constipation or encopresis. Dysfunctional elimination syndromes may also be associated with sexual abuse and should raise a concern in certain settings. Recurrent UTIs, diurnal enuresis beyond six years of age, and infrequent voiding are very common in the absence of sexual abuse.

Canning DA, Nguyen MT: Evaluation of the pediatric urology patient, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 110, pp 3199-3203, 3210.

Question #88**ANSWER=B**

Many men with pituitary macroadenomas require testosterone replacement in addition to bromocriptine. The prolactin secreting tumor lowers LH secretion, probably by destruction of the pituitary cells that make LH. Higher doses of bromocriptine are not indicated if the prolactin is normal. Transsphenoidal surgery or pituitary radiation are not indicated if bromocriptine controls the tumor. Human chorionic gonadotropin would be an appropriate option if the patient was interested in fertility. However, in a single man whose chief complaint is impotence, testosterone replacement is easier to administer and less costly.

McVary KT: Erectile dysfunction, in Braunwald E, Fauci AS, Kasper DL, et al (eds): HARRISON'S PRINCIPLES OF INTERNAL MEDICINE, ed 15. New York, McGraw-Hill, 2001, chap 51, p 191.

Question #89**ANSWER=E**

The most likely site of lymph node metastasis in an individual with a right-sided renal tumor is the interaortocaval lymph nodes. In men undergoing extensive RPLND at the time of surgery for renal cancer, 46% of men with lymph node metastases were found to have disease in this location compared to 27% in the hilar and 23% in the precaval location, respectively. Contralateral lymph node metastases are rare. As such, hilar lymph node dissection alone carries a poor sensitivity and negative predictive value. At the time of surgery for a right-sided renal tumor, if lymphadenectomy is to be undertaken, it should include the hilar, precaval, and interaortocaval lymph node chains. It should be noted that retrocrural lymph nodes are typically involved only in cases where there is already retroperitoneal lymph node disease.

Giuliani L, Giberti C, Martorana G, et al: Radical extensive surgery for renal cell carcinoma: Long term results and prognostic factors. J UROL 1990;143:468-474.

Wood DP Jr: Role of lymphadenectomy in renal cell carcinoma. UROL CLIN N AM 1991;18:421-426.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, p 1567.

Question #90

ANSWER=A

The length of time from injury and having had the tissue maintained in cold saline should permit adequate healing of the re-anastomosed tip. The urethra should be stented. There are no vessels of sufficient size to permit microvascular re-anastomosis. When the repair is performed within eight hours after the injury, the penis usually heals nicely. A graft of preputial skin for coverage would result in a poor cosmetic appearance. Similarly, reconfiguration of the remaining glans will not result in an ideal cosmetic effect.

Elder JS: Abnormalities of the genitalia in boys and their surgical management, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 126, p 3748.

Question #91

ANSWER=D

The presentation of a young woman with hypertension and wide pulse pressure, microscopic hematuria, flank mass, and congestive heart failure should immediately raise the suspicion of an arteriovenous fistula. While the other answers could explain hypertension, the key in this patient is congestive heart failure which in young individuals would be associated with a significant arteriovenous fistula and a renal mass.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 36, pp 1189-1190.

Question #92

ANSWER=B

The most common etiology of ureterovaginal fistula is surgical injury to the distal ureter, generally occurring during gynecologic procedures, most often during hysterectomy. Risk factors include endometriosis, obesity, pelvic inflammatory disease, radiation therapy and pelvic malignant disease. The most common presenting symptom is the onset of constant urinary incontinence one to four weeks after surgery. This is often

preceded by several days of flank or abdominal pain, nausea, and low-grade fever, presumably because of urinoma or ureteral obstruction. The goal of therapy is expeditious resolution of urine leakage, prevention of urosepsis and preservation of renal function. Prompt drainage of the affected upper urinary tract is essential. An attempt at ureteral stenting or percutaneous nephrostomy tube decompression is warranted as soon as possible. If ureteral stenting is unsuccessful, surgical repair is indicated. The site of injury and the surrounding fibrosis and inflammation usually preclude primary repair of the fistula necessitating ureteroneocystostomy.

Rovner ES: Bladder and urethral diverticula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 73, pp 2341-2345.

Question #93

ANSWER=C

Intra-detrusor injections of botulinum toxin type A have been effectively utilized to treat neurogenic overactive bladder. However, this is not an FDA-approved indication. A total dose of 200-300 units has been shown to have efficacy for this condition, with typically 10 units injected per site. This is an office procedure, with intravesical lidocaine administered prior to injection. In the majority of studies, botulinum toxin A injections last six to nine months. The most common side effects of botulinum toxin A include impaired bladder emptying, hematuria, and UTI.

Schurch B, Denys P, Kozma CM, et al: A improves the quality of life of patients with neurogenic urinary incontinence. EUR UROL 2007;52:850-858.

Question #94

ANSWER=E

The findings of hypertension, hypokalemia, and suppressed plasma renin activity are consistent with primary hyperaldosteronism. With renal artery stenosis or a Page kidney, the plasma renin level should be elevated. The serum CO₂ of 28 mEq/l mitigates against RTA. There are no data to support a diagnosis of pheochromocytoma in this patient.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, pp 1851-1853.

Question #95

ANSWER=A

Pneumaturia is the most common presenting symptom for a vesico-enteric fistula. Overall, the most common cause of vesico-enteric fistula is diverticulitis followed by cancer and Crohn's disease. Colo-vesical fistulas are usually due to diverticulitis.

However, underlying gastrointestinal disease influences the likelihood and type of fistula. Ileovesical fistulas are more commonly due to Crohn's disease than cancer.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, pp 2351-2352.

Question #96

ANSWER=B

The clinical history is consistent with an infection. Indwelling intravascular catheters and concomitant broad spectrum antibiotics increase the likelihood of candidal infection, particularly in premature low birth weight infants. If hydronephrosis and fungus balls are present in the renal collecting system, percutaneous drainage and irrigation with Amphotericin-B may be needed. At times, fluconazole may be effective. Renal papillary necrosis and cortical necrosis may be a late stage of severe infection and in this case would be made by the pathologist after treatment failure.

Shortliffe LMD: Infection and inflammation of the pediatric genitourinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 112, p 3265.

McAleer SJ, Johnson CW, Johnson WD Jr: Tuberculosis and parasitic and fungal infections of the genitourinary system, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 14, pp 459-470.

Question #97

ANSWER=D

Medial fibroplasia is the most common form of fibromuscular renal artery disease. It typically occurs in women between 30-50 years of age. It is associated predominately with hypertension and is rarely a cause of progressive renal ischemic atrophy. All other diseases listed are associated with progressive disease that can culminate in renal loss.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 36, p 1160.

Question #98

ANSWER=A

In this case the clinical findings are most consistent with a pancreatic fistula resulting from unrecognized intraoperative injury to the tail of the pancreas. These fistulas usually close with conservative management (bowel rest and hyperalimentation). Endoscopic intubation of the pancreatic duct likely will not be helpful as this structure is not obstructed. Distal pancreatectomy would be considered a last resort only after less

invasive interventions have failed. Medium chain triglycerides are used in the management of chylous ascites.

Chow GK, Blute ML: Surgery of adrenal glands, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 54, pp 1885-1886.

Question #99

ANSWER=C

The differential diagnosis of a wet umbilicus in the infant includes patent urachus, omphalitis, simple granulation of the healing stump, patent vitelline or omphalomesenteric duct, infected umbilical vessel, and external urachal sinus. The finding of a urinary creatinine level in the fluid draining from the umbilical stump suggests a patent urachus. While probing the urachal tract may aid in diagnosis, a VCUG should confirm the diagnosis and fully evaluate the lesion and any associated bladder outlet obstruction.

Frimberger D, Kropp BP: Bladder anomalies in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 121, pp 3576-3578.

Question #100

ANSWER=E

Detrusor overactivity with impaired contractility is the most common form of detrusor dysfunction in the elderly. The typical presentation is urinary urge incontinence and an increased PVR. Pressure-flow urodynamics typically reveal involuntary detrusor contractions, low detrusor pressure, and decreased maximum urinary flow. This syndrome can often be confused with bladder outlet obstruction or overflow incontinence. Although behavioral methods such as straining, performing the Crede maneuver, and double voiding can be initiated, bladder emptying is generally ineffective. Bethanechol has not been effective in augmenting detrusor contractility. Suppression of involuntary bladder contractions with an antimuscarinics will generally result in an increase in the PVR despite efforts to reduce outlet resistance. The addition of CIC to antimuscarinics results in effective bladder emptying and eradication of the incontinence.

Resnick NM, Yalla SV: Geriatric incontinence and voiding dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 71, p 2310.

Question #101

ANSWER=A

This patient most likely has persistent seminoma in the retroperitoneum. Patients who harbor non-seminomatous elements that could have been "burnt-out" in the primary tumor usually have beta-hCG levels higher than 200 ng/ml. Most authorities

recommend treating seminoma with radiation to the retroperitoneal lymph nodes only, thus avoiding the potential toxicity of mediastinal disease which, if it develops later, may be salvaged with chemotherapy. Primary RPLND is not recommended for seminoma. Patients with markedly elevated serum LH levels may have a false elevation of beta-hCG but it is usually not to the magnitude described here.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 29, p 906.

Question #102

ANSWER=B

When a long segment of strictured proximal ureter is encountered at the time of a planned repair for UPJ obstruction, a tension free anastomosis may not be possible with a standard dismembered pyeloplasty. When adequate renal pelvic tissue is present, the next best option is a spiral flap procedure, especially when the UPJ is already in a dependent position. The other options are viable alternatives but should only be considered when renal pelvis tissue is not available for use since they are more technically challenging and/or have a higher associated complication rate.

Carr MC, El-Ghoneimi A: Anomalies and surgery of the ureteropelvic junction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 115, p 3370.

Question #103

ANSWER=C

Transplantation into a pre-existing urinary diversion is necessary when the bladder is absent, the recipient is totally incontinent and cannot undergo repair or irreparable bladder damage has occurred. Selected patients may undergo successful undiversion at transplantation even after many years of urinary diversion. They should undergo urodynamics, VCUG, and cystoscopy. In the absence of significant fibrosis, long-term defunctionalized bladders should improve with restoration of urine flow. This may be assessed after three to five days of bladder cycling by suprapubic tube or CIC. Bladder cycling must result in a bladder capacity > 100 ml and urodynamics must demonstrate a voiding pressure < 100 cm water before transplanting into the native bladder.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 124, p 3701.

Question #104**ANSWER=E**

The incidence of rectourethral fistula after radical retropubic prostatectomy is 1-2%. The risk of a fistula increases with a prior history of pelvic radiation therapy, rectal surgery, or TURP. Fistulas generally occur at the vesicourethral anastomosis and are often due to unrecognized rectal injury at the time of surgery. Although single and staged repairs have been described, staged repairs are recommended in cases of large fistulas and those associated with radiation therapy, uncontrolled local or systemic infection, immunocompromised states, or inadequate bowel preparation at the time of definitive repair. Conservative treatment with urethral catheterization is unlikely to be successful for large fistulas in the setting of prior radiation.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, pp 2353-2357.

Question #105**ANSWER=B**

Hydronephrosis occurs in 5% of ureters at risk following reconstructive vascular surgery. The cause of ureteral obstruction is anterior graft placement (30%) and localized retroperitoneal fibrosis (70%). Grafts should be placed posterior to the ureter, as in this case. Early ureteral obstruction due to secondary retroperitoneal fibrosis occurring within six months of surgery can resolve with a four week course of oral steroid therapy. Percutaneous nephrostomy is not indicated with only mild flank pain and a normal serum creatinine. Transureteroureterostomy should be reserved for major loss of ureteral length and nephrectomy is not indicated. Ureterolysis would be reserved for failure of more conservative measures.

Cangiano TG, deKernion JB: Urologic complications of vascular surgery. AUA UPDATE SERIES 1998, vol 17, lesson 39, p 306.

Huben RP, Schellhammer PF: Steroid therapy for ureteral obstruction after aortoiliac graft surgery. J UROL 1981;125:881-883.

Pais VM Jr, Strandhoy JW, Assimos DG: Pathophysiology of urinary tract obstruction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 37, p 1223.

Question #106**ANSWER=B**

When performing renal transplantation, recurrence of the underlying renal disease which resulted in ESRD is of significant concern. Renal amyloidosis, cystinosis, and Fabry's disease are all potentially treatable with renal transplantation despite significant recurrence. Alport syndrome is not associated with recurrence after transplantation, but does not require a liver transplant. Simultaneous renal and liver transplantation will be

curative in patients with ESRD secondary to primary hyperoxaluria since the defect in oxalate metabolism occurs in the liver.

Pearle MS, Lotan Y: Urinary lithiasis: Etiology, epidemiology, and pathogenesis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 42, p 1378.

Question #107

ANSWER=C

In patients with low-stage NSGCT, the scrotal scar should be widely excised with the spermatic cord remnant at the time of RPLND. This patient, however, has more high volume disease. Patients treated with full-dose platinum-based regimens should have the cord stump removed at the time of RPLND; however, given the relative absence of local relapse after systemic treatment, extensive groin dissection or hemiscrotectomy is not required.

Sheinfeld J, Bartsch G, Bosl GJ: Surgery of testicular tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 30, p 938.

Question #108

ANSWER=D

In this case, any continent diversion (including a Kock pouch) is contraindicated due to difficulty catheterizing. A ureterosigmoidostomy requires fecal continence. A non-refluxing colon conduit would be at high risk for complications due to the dilated ureters and loop ureterostomies require two appliances. A continuously draining ileovesicostomy is a low risk procedure that will allow free urinary drainage and easy application. The complications of the procedure include urethral incontinence, stomal stenosis and bladder and renal calculi.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, p 2606.

Question #109

ANSWER=B

Despite a negative clinical history for UTI, VUR as a cause of ESRD must be ruled out in a woman of childbearing age. If significant (Grade III or higher) VUR exists, strong consideration should be given to native nephrectomy to avoid chronic infection post-transplant. If native nephrectomy is necessary, the surgery should be postponed until the patient is dialysis-dependent. There is no need to repeat the 24-hour urine collection since the creatinine clearance is < 20 ml/min, which is an accepted criteria for transplantation. There is no indication for preemptive bilateral native nephrectomy, retrograde pyelography, or renal scan in this setting.

Barry JM, Jordan ML, Conlin MJ: Renal transplantation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 40, pp 1299-1300.

Question #110

ANSWER=C

The possible deleterious effect of androgen deprivation therapy on bone health is becoming increasingly recognized. A DEXA nuclear medicine study is often the diagnostic study of choice to measure bone mineral density (BMD). The BMD is expressed as a T score, which defines the number of standard deviations away from a mean BMD score derived from normal individuals of the same sex between 20 and 35 years of age, when bone mass is generally at its peak. The lower the T score, the lower the BMD and the greater the risk for fracture. The BMD measures the relative and not the absolute future risk. Each standard deviation reduction in BMD core correlates to a 10% to 15% reduction in BMD, and an approximate doubling of fracture risk. The Z score compares one's BMD to age-matched peers.

MA Moyad: Preventing male osteoporosis: Prevalence, risks, diagnosis and imaging tests. UROL CLIN N AM 2004;31:321-330.

Michaelson MD, Kaufman DS, Lee H, et al: Randomized controlled trial of annual zoledronic acid to prevent gonadotropin-releasing hormone agonist-induced bone loss in men with prostate cancer. J CLIN ONCOL 2007;25:1038-1042

Question #111

ANSWER=A

After continent reconstruction with an intestinal segment, there is a high incidence of bacteriuria especially if CIC is required to empty the reservoir. An antirefluxing connection of the upper urinary tract protects the kidneys from ascending infection. Intra-reservoir pressure is transmitted to the upper urinary tract even in the absence of reflux. Successful continent reconstruction is predicated on an adequate low pressure reservoir.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, pp 2554-2559.

Question #112

ANSWER=E

Urethral and bladder neck injuries in women are rare but potentially devastating in their effects on long-term continence and bladder function. The urethra is short, mobile, and protected by the pubis in women. Female urethral and bladder neck injuries occur in 4.6% to 6% of women suffering pelvic fractures. The typical presentation includes gross hematuria or blood at the introitus. Despite blood in the vaginal vault, over 40% of

female bladder neck and urethral injuries are missed in the emergency department and only half will be detected on CT cystogram. As a result, one must have a high index of suspicion and low threshold for performing a vaginal examination in females with pelvic fractures. Female bladder neck injuries should undergo immediate repair with primary closure of any vaginal lacerations to prevent fistula formation. Longitudinal tears of the female bladder neck have been associated with higher rates of incontinence. Such injuries should be repaired immediately to preserve the functional integrity of the bladder neck. In one recent series, despite operative repair, 16% of women developed vesicovaginal fistulas, 43% had moderate or severe lower urinary tract systems, and 38% had sexual dysfunction.

Black P, Miller E, Porter JR, Wessells H: Urethral and bladder neck injury associated with pelvic fracture in 25 female patients. J UROL 2006; 175(6):2140-2144.

Question #113

ANSWER=C

Small rounded masses of the epididymis (0.5-3 cm) are generally adenomatoid tumors. These tumors can be located throughout the epididymis and are generally asymptomatic. They are typically benign tumors, and there are no reported cases of metastasis. The recommended treatment is surgical excision.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 9. Philadelphia, Elsevier, 2007, chap 29, pp 931-932.

Question #114

ANSWER=A

The normal GFR averages 130-180 l/day, a volume sixty times that of plasma volume. Therefore, most filtered solutes and water must be returned to the circulation. Tubular reabsorption accomplishes this phenomenon - mainly in the proximal tubule and then the loop of Henle. Proximal tubular secretion would remove solutes from the circulation as would distal tubular secretion. The countercurrent mechanism is a net exchange.

Rose BD, Rennke HG: RENAL PATHOPHYSIOLOGY - THE ESSENTIALS. Baltimore, Williams &Wilkins, 1994, p 2.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, p 1138.

Question #115

ANSWER=E

This patient has acute prostatitis. Prostatic massage is to be avoided in patients with acute prostatitis as this may cause bacteremia. Consequently, c and d are not only

unnecessary for diagnosis but might well be harmful. The diagnosis can be made from culture of the urine, as the organism causing the prostatitis is almost always present in the bladder urine during acute prostatitis. Cultures from the urethra are of no particular value in this case. Instrumentation of the lower urinary tract should be avoided in acute prostatitis; furthermore, it is seldom necessary to catheterize a male just to obtain a urine culture.

Fowler J: Prostatic infection and inflammation, in Stein BS, Caldamone AA, Smith JA (eds): CLINICAL UROLOGIC PRACTICE. New York. WW Norton, 1995, pp 331-353.

Nickel JC: Inflammatory conditions of the male genitourinary tract: Prostatitis and related conditions, orchitis, and epididymitis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 9, p313.

Question #116

ANSWER=B

This patient has a paratesticular sarcoma. Local treatment is radical orchiectomy via the inguinal approach. If there is evidence of involvement of the scrotal wall, hemi-scrotectomy would be appropriate. The inguinal nodes are not at particularly high risk of disease, though a RPLND is indicated in some types of sarcoma.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 29, p 933.

Question #117

ANSWER=E

Although early diuresis after relief of obstruction may be due to solute and water overload, in this instance the diuresis persists. This sodium-losing nephropathy is due to impaired tubular reabsorption of sodium. Failure to decompress the bladder slowly will not result in diuresis. Increased urea content in the urine will not result in diuresis and not likely present in this patient as his BUN has returned to normal. Overload of fluids prior to relief of obstruction will result in diuresis but with a normal BUN and ankle edema gone, this would not last 48 hours.

Sokoloff MH, Michel K, Smith RB: Complication of transurethral resection of the prostate in, Taneja SS, Smith RB, Ehrlich RM (eds): COMPLICATIONS OF UROLOGIC SURGERY: PREVENTION AND MANAGEMENT, ed 3. Philadelphia, WB Saunders Co, 2001, chap 19, p 232.

Pais VM Jr, Strandhoy JW, Assimos DG: Pathophysiology of urinary tract obstruction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 37, p 1214.

Question #118**ANSWER=C**

Balanitis xerotica obliterans (Lichen sclerosis et atrophicus) is an inflammatory condition of the glans and prepuce of unknown cause. It frequently produces significant phimosis and may produce complete obliteration of a glans penis. The etiology remains controversial, as is the treatment. In a study of 287 patients, Depasquale, et al demonstrated 92% of patients undergoing circumcision alone had symptom relief and arrest of the progress of the disease. 3.9% of patients had development of glans ulceration requiring glans resurfacing and 4% had meatal stenosis significant enough to require meatotomy or meatoplasty.

Depasquale I, Park AJ, Bracka A: The treatment of balanitis xerotica obliterans. BJU INTERNAT 2000;86:859-865.

Question #119**ANSWER=E**

This is an unusual site for a benign ureteroileal stricture, and there is a high likelihood that this is the result of tumor recurrence in the ureter. Endoscopic management is unlikely to work, and does not establish the etiology of the obstruction. Since the kidney has little remaining parenchyma, the best treatment is nephroureterectomy.

Flanigan RC: Urothelial tumors of the upper urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 48, p 1649.

Question #120**ANSWER=B**

Prolonged parenteral fluid and electrolyte therapy which doesn't include magnesium can result in significant depletion of this electrolyte. The symptoms of hypomagnesemia include neuromuscular irritability and disturbed cerebration. Any patient maintained solely on prolonged intravenous fluids should have serum magnesium levels determined, particularly if he fails to improve. Electrolyte replacement should include appropriate amounts of magnesium. Calcium abnormalities will result in neuromuscular disturbances but not likely with the behavioral manifestations.

Agus ZS: Hypomagnesemia. J AM SOC NEPHROL 1998;10:1616-1622.

Polack MR, Yu ASL, Taylor EN: Disorders of calcium, magnesium and phosphate balance, in BM Brenner (ed): THE KIDNEY, ed 8. Philadelphia: Saunders Elsevier, 2008, chap 16, p 596.

Question #121**ANSWER=B**

This patient has chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS). This condition has been studied extensively by the NIH-funded Chronic Prostatitis Clinical Research Network (CPCRN). The CPCRN has found that WBC on expressed prostatic secretion do not correlate with severity of CP/CPPS symptoms. Furthermore, ciprofloxacin and alpha-blockers are not effective. If prostatic abscess is suspected, an expressed prostatic secretion should not be performed. However, the clinical presentation does not suggest an abscess. While autoimmunity in CP/CPPS has been suggested, there is no data to correlate a diagnosis of autoimmunity with the finding of WBC on expressed prostatic secretion.

Schaeffer AJ, Knauss JS, Landis JR, et al: Chronic Prostatitis Collaborative Research Network Study Group. Leukocyte and bacterial counts do not correlate with severity of symptoms in men with chronic prostatitis: The National Institutes of Health Chronic Prostatitis Cohort Study. J UROL 2002;168:1048-1053.

Alexander RB, Probert KJ, Schaeffer AJ, et al: Chronic Prostatitis Collaborative Research Network. Ciprofloxacin or tamsulosin in men with chronic prostatitis/chronic pelvic pain syndrome: A randomized, double-blind trial. ANN INTERN MED 2004;141(8):581-589.

Question #122**ANSWER=D**

This patient has a high-grade tumor in the renal pelvis. Although one would like to avoid making him anephric, the chance of tumor control with conservative measures is poor because of the size and grade of the tumor. Partial nephrectomy would be technically difficult and would result in a high likelihood of tumor recurrence given the multifocal nature of the disease. Systemic chemotherapy and endoscopic treatment must be considered second choices if he refuses nephrectomy. Although his bladder remains at risk for TCC recurrence, cystectomy is not indicated at this time and may be used during renal transplantation if he remains disease-free for two years

Sagalowsky AI, Jarrett TW: Management of urothelial tumors of the renal pelvis and ureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 49, p 1653.

Question #123**ANSWER=B**

This patient has nephrotic syndrome with generalized anasarca. In this disorder, increased permeability of the glomerular capillary basement membrane leads to leakage of plasma protein into the glomerular filtrate and urine. The resulting hypoproteinemia causes a drop in circulatory volume. This leads to decreased renal perfusion and activation of the renin-angiotensin system with subsequent release of aldosterone. Sodium is retained and the temporary hyperosmolality increases ADH

secretion. Total body sodium and water increase, but the serum sodium does not usually change because the increased fluid goes into the extracellular space, causing edema. The secondary aldosteronism may also cause an increased bicarbonate, alkalosis, and hypokalemia. The nephrotic syndrome is also characterized by an increase in plasma lipid concentration which includes cholesterol, phospholipids, and triglycerides.

Noe HN, Jones DP: Renal disease in childhood, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 111, p 3225.

Question #124

ANSWER=D

Pyocystis occurs in approximately 20% of patients who undergo supravescical diversion. Patients typically have a malodorous discharge and may develop sepsis. If conservative measures such as routine bladder irrigations fail, vaginal vesicostomy (creation of a large vesico-vaginal fistula) is an effective method of preventing pyocystis. This is an especially good alternative for an elderly or high risk patient. A stapling device can be used to quickly perform this operation. Absorbable staples should be used if the patient is sexually active.

Doherty AP, Bellringer J: Stapled vaginal vesicostomy for pyocystis in the defunctioned female bladder. BJU INTERN 1999;83:339-340.

Question #125

ANSWER=A

Patients with CIS, or non-invasive low grade (grade 1 or 2) penile cancers have an extremely low risk of regional node metastasis. In patients with non-invasive low grade tumors following treatment, if there is palpable adenopathy, a course of antibiotics is warranted and often the adenopathy will resolve. Since the incidence of inguinal metastasis in this group of patients is essentially anecdotal, if adenopathy persists after antibiotics, needle biopsy should be performed. If the needle biopsy is non-informative, an excisional biopsy is recommended. If biopsy is positive, bilateral lymphadenectomy is warranted. If negative, these patients can be observed.

Pettaway CA, Lynch DF Jr, Davis JW: Tumors of the penis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 31, p 980.

Question #126

ANSWER=C

Most (99%) of total body potassium is located within cells. Extracellular potassium is closely regulated to maintain resting membrane potentials that are critical to nerve and muscle function. Potassium is secreted by the distal convoluted tubule and collecting

duct. When this mechanism is impaired in renal failure, hyperkalemia (plasma K in excess of 5.3 mEq/l) occurs. This patient is nearing a crisis in terms of cardiac function. Calcium gluconate immediately but transiently mitigates the potassium effect. Sodium bicarbonate lowers plasma K⁺ concentration within an hour. Hemodialysis and Kayexalate cannot be initiated as quickly. Insulin and glucose also take 30-60 minutes to work.

Rose BD, Rennke HG: RENAL PATHOPHYSIOLOGY - THE ESSENTIALS. Baltimore, Williams & Wilkins, 1994, pp 176-184.

Catteran D, Turner P: Primary glomerular disease, in Rakel RE, Bope, ET (eds): CONN'S CURRENT THERAPY, ed 6. Philadelphia, Saunders, 2006, chap 10, p 880.

Question #127

ANSWER=D

One theory of interstitial cystitis is increased bladder urothelial permeability due to a diminished urothelial glycosaminoglycan (GAG) layer. Oral sodium pentosan polysulfate (Elmiron) presumably increases the GAG layer and thereby decrease bladder permeability. However, randomized prospective trials have only shown modest efficacy of sodium pentosan polysulfate.

Hanno PM: Painful bladder syndrome/Interstitial cystitis and related disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 10, p 330.

Question #128

ANSWER=A

Prostate MRI scan with endorectal coil may be a useful modality for evaluation of prostate cancer. Specifically, the test may be useful for identifying extraprostatic disease and intraprostatic lesions. On T1 images, there is little intraprostatic detail but on T2 images, there are differences in signal intensity that allow the reader to distinguish between the various anatomic components of the gland and identify the location of lesions. Specifically, on T2 images, the peripheral zone has high signal intensity, the central zone has intermediate intensity, and the seminal vesicles have high signal intensity, as do the neurovascular bundles and the dorsal venous complex.

Bhayani SB, Siegel CL: Urinary tract imaging: Basic principles, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 4, p 111.

Question #129

ANSWER=E

Patients with a concentrating defect related to early obstruction (nephrogenic diabetes insipidus) will not be able to significantly decrease urine volume with mild fluid

restriction. Salt restriction as well will not usually result in reduction in urine volume. These patients, by definition, will not respond to vasopressin. Postvoid catheterizations would be useful only if incomplete voiding is suspected (which is sometimes the case with the previously resected valve patients). Of the choices offered, more frequent voidings may result in resolution of both the daytime and nighttime wetting. It may be necessary, however, for this boy to get up once or twice per night. The character of this bladder will have major impact on therapy. If the bladder has reduced compliance with a reduced volume, antimuscarinic therapy should be considered.

Casale AJ: Posterior urethral valves and other urethral anomalies, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 122, p 3587.

Question #130

ANSWER=A

There is no documentation of infection, and suppressive antibiotics should not be considered until infections are documented. Further evaluation of the bladder and upper tract are not needed yet, given the lack of symptoms between episodes and the absence of hematuria, although additional assessment may be appropriate later. An additional test that might also be considered is urinalyses of a catheterized urine sample, given the apparent contamination of the voided midstream urinalyses by vaginal epithelial cells. If the urine culture is negative while the patient is symptomatic, then a catheterized specimen is not necessary.

Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 8, pp 238-242.

Question #131

ANSWER=D

Preoperative colonoscopy is indicated in procedures that may require the use of large bowel. Sigmoidoscopy only is insufficient because more proximal disease may leave the patient with a short colon syndrome. A barium enema may miss small polyps. The surgeon should always be ready for unexpected anatomic variations that may cause a change in plan.

Benson MC, McKiernan JM, Olsson CA: Cutaneous continent urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 81, pp 2579-2580.

Question #132

ANSWER=D

Bladder outlet obstruction, as seen with a PUV, will often result in detrusor hypertrophy as well as hypertrophy of the bladder neck. Bladder neck hypertrophy creates an

angulation of the posterior urethra anteriorly which can result in a difficult catheterization as the catheter hits up against the wall of the hypertrophied bladder neck. It is important to recognize this when trying to catheterize a child with a history of a PUV even if it has been many years following valve ablation.

Glassberg KI, Horowitz M: Urethral valves and other anomalies of the male urethra, in Belman AB, King LR, Kramer SA (eds): CLINICAL PEDIATRIC UROLOGY, ed 4. London, Martin Dunitz Ltd, 2002, chap 28, p 899.

Casale AJ: Posterior urethral valves and other urethral anomalies, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 122, p 3586.

Question #133

ANSWER=E

No definitive evidence suggests that any of the available treatments is superior to any other for genital warts. While treatment may reduce infectivity, the potential for infectivity is probably not eradicated. Diagnosis of genital warts can be confirmed by biopsy, although biopsy is needed only under certain circumstances: for example, the warts do not respond to standard therapy; the disease worsens during therapy; the patient is immunocompromised; or warts are pigmented, indurated, fixed, and ulcerated. According to CDC guidelines, examination of sex partners is not necessary for the management of genital warts because no data indicate that reinfection plays a role in recurrences, and no data support the use of type-specific HPV nucleic acid tests in the routine diagnosis or management of visible genital warts.

Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines 2002. MMWR2002;51(No. RR-6): pp 53-55.

Question #134

ANSWER=A

Chronic renal insufficiency is a relative contraindication to continent urinary diversion as more renal function is necessary with a retentive type of diversion as compared to a short ileal conduit. In general, patients without proteinuria and a creatinine of less than 2.0 mg/dl do well with continent urinary diversion. In patients with a creatinine over 2.0 in whom a continent urinary diversion is being considered, a more detailed analysis of the other components of renal function is necessary. Patients with minimal proteinuria, a GFR over 35 ml/min, a urine pH less than 5.8 with acid loading, and a urine osmolality of over 600 mOSM in response to water deprivation are appropriate candidates for continent urinary diversion.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, pp 2563-2564.

Question #135**ANSWER=C**

Bupivacaine is a long acting local anesthetic. It is widely used for regional neural blocks and caudal blocks for postoperative analgesia. Its effect endures for eight hours or more. The toxicity of bupivacaine involves hypertension and heart block which is difficult to reverse. A dose above 2.5 mg/kg should not be exceeded. The mean seizure dose in monkeys is 4.4 mg/kg and the LD 50 in mice was 6 mg/kg intravenously.

Zwass MS: Regional anesthesia in children. ANESTH CLIN N AM 2005;23:818.

Question #136**ANSWER=A**

While the nitrite urinary dip stick is considered to have good specificity for detecting a UTI, it has poor sensitivity. This is because the nitrite test strip relies on the reduction of urinary nitrate to nitrite by bacterial production of nitrate reductase. A false negative will be obtained if bacteria do not produce nitrate reductase, if bladder urine incubation time is insufficient for the reduction to take place, and if bacterial numbers are too low (the latter two problems are associated with increased urinary frequency from UTI). Urinary nitrate from the normal human diet does not cause a positive nitrite result. Exposure of the dip stick to room temperature and humidity (i.e. not closing the cover on the bottle between uses) for a week will cause a false positive.

Gallagher EJ, Schwartz E, Weinstein RS: Performance characteristics of urine dipsticks stored in open containers. AM J EMERG MED 1990;8(2):121-123.

Question #137**ANSWER=B**

This woman most likely has chronic renal insufficiency and the renogram reflects this condition. Diseased kidneys may respond poorly to diuretic in the absence of obstruction. The only way to establish conclusively if obstruction exists would be to place a nephrostomy tube. A pressure-flow study can then be performed and the serum creatinine observed. A renal biopsy, if performed, is likely to show focal segmental sclerosis and/or chronic pyelonephritis but this is not helpful in management.

Weiss RM: Physiology and pharmacology of the renal pelvis and ureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 55, pp 1909-1914.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, pp 2562-2566.

Question #138**ANSWER=A**

Nephrocalcinosis occurs primarily in children with distal RTA. This is characterized by impaired hydrogen ion excretion in the distal collecting duct. It rarely occurs in proximal RTA which results from an impairment in proximal tubular bicarbonate reabsorption or in the Fanconi syndrome where excessive amounts of amino acids are excreted along with organic anions such as citrate which tend to prevent calcium precipitation. Idiopathic hypercalciuria and primary hyperparathyroidism rarely cause nephrocalcinosis, but when present the acidification defect found in distal RTA usually coexists.

Thomas SE, Stapleton FB: Urolithiasis in children, in Gonzales ET, Bauer SB (eds): PEDIATRIC UROLOGY PRACTICE, Philadelphia, Lippincott Williams & Wilkins, 1999, chap34, pp 607-619.

Question #139**ANSWER=A**

Traditionally, it has been taught that early vascular control of the renal hilum allows for safe renal exploration. It has been assumed that early vascular control decreases blood loss, renal loss, need for blood transfusions and mortality. Most data, however, are anecdotal and based on literature review. A randomized prospective study of 56 patients during a 53 month period was undertaken comparing outcomes of those patients with early vascular control versus those with renal exploration without initial renal vascular control. Those patients who underwent early vascular control required increased operative time and required more blood transfusions due to increased blood loss. There was no increase in mortality in those patients explored without first obtaining vascular control. Renal loss was similar between the two groups. The thinking that penetrating renal trauma should be approached after establishing hilar control may not only increase operative time but may increase the risk of blood loss and need for blood transfusions. These observations may not hold true for blunt trauma or less severe kidney injuries, in which the risk of nephrectomy is lower.

Gonzalez RP, Falimirski M, Holevar MR, Evankovich C: Surgical management of renal trauma: Is vascular control necessary? J TRAUMA: INJURY, INFECTION & CRITICAL CARE 1999;47(6): 1039-1044.

Santucci.RA, Wessells H, Bartsch G, et al: Evaluation and management of renal injuries: consensus statement of the renal trauma subcommittee. BJU INTERN, 2004;93:937-954.

Question #140**ANSWER=D**

Parastomal hernias occur more commonly with loop than end-on stomas. The most effective method of such hernia management is by relocation of the stomal site to the other side of the abdominal wall and by closure of the hernia. Meticulous closure of the rectus fascia is the best method of preventing this complication.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, pp 2553-2554.

Helal M, Austin P, Spyropoulos E, Pow-Sang J, et al: Evaluation and management of parastomal hernia in association with continent urinary diversion. J UROL 1997;157:1630-1632.

Question #141

ANSWER=B

Renal vein thrombosis in childhood most often presents with gross hematuria in association with a flank mass, thrombocytopenia, metabolic acidosis, tachypnea, pallor, failure to thrive, proteinuria, and diminished renal function. Bilateral renal vein thrombosis in childhood is uncommon. Conservative (non-surgical, non-interventional) management results in a survival rate approaching 90%. Hypertension, the most common long-term problem encountered after unilateral renal vein thrombosis, may be seen in 15%. Delayed nephrectomy appears the most successful management for hypertension after unilateral renal vein thrombosis.

Kenet G, Nowak-Gottl U: Fetal and neonatal thrombocytopenia. OBST GYN CLIN N AM 2006;33:460.

McKenna PH, Ferrer FA: Perinatal and postnatal urologic emergencies, in Docimo SG, Canning DA Khoury AE (eds): CLINICAL PEDIATRIC UROLOGY, ed 5. London, Informa Healthcare, 2007, chap 6, p 88.

Goldberg NA, Bernard JJ: Venous thromboembolism in children. PED CLIN N AM, 2008;55:316.

Question #142

ANSWER=D

Erectile dysfunction (ED) is common in patients with pelvic fracture associated urethral injury. Mechanisms include neurogenic and vasculogenic injury, and the latter has implications for urethral reconstruction. Posterior urethroplasty for prostatomembranous urethral distraction defects requires mobilization of the corpus spongiosum and depends on retrograde blood flow through the dorsal arteries and glans penis to the distal urethra. Insufficiency of the spongiosal circulation is associated with failure of bulboprostatic anastomotic urethroplasty. Erectile function should be assessed and documented in such patients before attempting urethroplasty. If erections are normal, then inflow from the internal pudendal artery-common penile artery-dorsal penile arterial tree is considered to be intact. For patients with ED, in the majority erectile dysfunction is caused by disruption of the cavernous nerves with sparing of arterial inflow. However, in cases of cavernosal arterial insufficiency, the disruption of the internal pudendal artery will lead to insufficient arterial inflow to the dorsal arteries; as a result, experts recommend arterial revascularization prior to urethroplasty in cases of diminished vascular inflow to the dorsal arteries.

Cavernosometry is a significantly more invasive vascular test, and is not the investigation of choice in this patient. Nocturnal penile tumescence testing is a nonspecific test that will not identify specific vasculogenic etiologies of ED. In office intracavernosal injection of alprostadil will not differentiate arterial from venous mechanisms of vasculogenic ED. A complete response is still possible in cases of arterial insufficiency. Penile duplex Doppler ultrasonography can effectively diagnose cavernosal arterial insufficiency and may allow imaging of the dorsal penile arteries as well. Pelvic MRI scan has been used to identify crural disruption post pelvic fracture but does not have the resolution necessary to delineate arterial anatomy of the pudendal vascular tree.

Shenfeld OZ, Kiselgorf D, Gofrit ON, et al: The incidence and causes of erectile dysfunction after pelvic fractures associated with posterior urethral disruption. J UROL 2003;169:2173-2176.

Question #143

ANSWER=C

Urinary retention after transperineal brachytherapy is common in men with significant pre-treatment obstructive symptoms and is best managed by CIC. 125I has a half-life of 60 days and TURP has been suggested to be contraindicated in the first nine months after treatment because of the risk of radioactive exposure to the surgeon, operating room personnel, and pathologists. It is well demonstrated that patients with retention following seed implant may resolve retention following six to twelve months of CIC. Given the increased risk of TUR following RT, it is preferable to observe the patient prior to surgical intervention. Response rates to all alpha blockers are similar and switching to another agent of the same class is unlikely to help. Either oral bicalutamide or finasteride will take several months to shrink the prostate.

Terk MD, Stock RG, Stone NN: Identification of patients at increased risk for prolonged urinary retention following radioactive seed implantation of the prostate. J UROL 1998;160:1379.

D'Amico AV, Crook J, Beard CJ, et al: Radiation therapy for prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 100, p 3006.

Question #144

ANSWER=C

Beckwith Wiedemann syndrome is typified by macroglossia and visceromegaly. This includes hepatic enlargement and adrenal cortical cytomegaly. In addition, somatic overgrowth is common. Karyotype is normal. Many patients will have hemihypertrophy. Approximately 20% of the patients with Beckwith Wiedemann syndrome develop malignancies. These include Wilms' tumor, adrenocortical neoplasms, and hepatoblastoma. Testicular tumors have not been reported with increased frequency in these patients. Serial imaging will help detect tumors at an early stage of development. Ultrasound is sufficient and VCUG and MRI scans are overly aggressive.

Ritchey ML, Shamberger RC: Pediatric urologic oncology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 130, pp 3885-3886.

Question #145

ANSWER=B

The clinical description is most consistent with a tinea cruris infection caused by a dermatophyte. *Trichophyton rubrum*, *Trichophyton mentagrophytes* and *Epidermophyton floccosum* are the most common causative organism. This condition is relatively common and should be easily recognized by urologists. Topical tolnaftate is specific treatment for this fungus. Topically applied nystatin is effective only in candidiasis. Orally administered fluconazole is not indicated. Steroid therapy should not be administered.

Link RE: Cutaneous diseases of the external genitalia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 13, pp 419^26.

Question #146

ANSWER=A

Inflammation is found in up to 30% of prostate biopsies. Its presence could be suggestive of infection, but in the absence of clinical symptoms, empiric antibiotic therapy is not warranted. Anti-inflammatory drugs have been evaluated for potential chemotherapeutic effect, but there is no evidence that such drugs are indicated in the treatment of asymptomatic inflammation. It has also been postulated that inflammation may serve as an early precursor to prostate cancer, but as of yet, repeat biopsy for inflammation observed on biopsy is not routinely recommended. In this case, continued observation with follow-up PSA measurement is the appropriate next therapy.

Carter HB, Allaf ME, Partin AW: Diagnosis and staging of prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 94, p 2912.

Question #147

ANSWER=E

Autoregulation of GFR and renal blood flow occurs primarily through variation in afferent arteriolar resistance. Micropuncture studies support the hypothesis that changes in rate of fluid flow in the distal tubule elicit these changes in glomerular arteriolar resistance, a phenomenon known as tubuloglomerular feedback. Renal autoregulation is responsible for the relatively small changes in renal blood flow and GFR over wide ranges of perfusion pressures. This autoregulation is present in both innervated and denervated kidneys.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, p 1131.

Question #148

ANSWER=E

Nontreponemal, serologic tests like the VDRL and the Rapid Plasma Reagin (RPR) test are inexpensive, easy to perform, and are sensitive (except in those with very early disease or in those who acquired the disease in the distant past). However, false positive tests are not uncommon and patients with positive tests need to undergo more careful testing to confirm the diagnosis before treatment is undertaken. Transient false positive reaginic tests may be encountered in patients with acute viral infections (hepatitis, mononucleosis, varicella, herpes simplex or measles), malaria or during pregnancy. Sustained false-positive tests may occur in those with autoimmune diseases, intravenous drug abusers, the elderly and in those with certain chronic diseases (multiple myeloma or advanced malignancy). The false positive rate for VDRL is 1-2%. All positive tests should be confirmed with treponemal testing using T. pallidum particle agglutination (TP-PA) or fluorescent treponemal antibody absorbed (FTA-ABS) testing.

Hutchinson CM, Hook E: Syphilis in adults. MED CLIN N AM 1990;74:1389-1416. Frenkl T, Potts J: Sexually transmitted diseases, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 11, pp 375-379.

Question #149

ANSWER=E

At the time of biochemical relapse following local therapy, the PSA velocity or doubling time provides a strong prediction of the likelihood of disease related morbidity and mortality. Individuals with PSA doubling time less than three months are most likely to develop bone metastases and ultimately experience disease-related mortality. In these individuals, early intervention with systemic therapy, in this case hormonal ablation, is advisable. The high likelihood of microscopic metastatic disease predicts a low likelihood of local recurrence alone. As such, salvage cryoablation of the prostate would be unlikely to influence disease outcome. Prostate biopsy would not rule out the possibility of distant metastatic disease and therefore would not influence disease management. Lymph node dissection would not rule out distant metastases.

D'Amico AV, Moul J, Carroll PR, et al: Prostate specific antigen doubling time as a surrogate end point for prostate cancer specific mortality following radical prostatectomy or radiation therapy. J UROL 2004;172:42-46.

Patel R, Lepor H, Thiel RP, Taneja SS: PSA velocity predicts the likelihood of response to salvage radiotherapy for biochemical relapse after radical prostatectomy. UROL 2005;65(5):942-946.

Congenital neuroblastoma may present in a similar fashion as a pheochromocytoma, with symptoms produced by secretion of catecholamines. These symptoms have been reported occasionally in pregnant mothers with fetuses having catecholamine-secreting neuroblastomas. Congenital mesoblastic nephroma is not associated with paraneoplastic syndromes. Hydronephrosis and multicystic kidneys are rarely associated with hypertension but would not exhibit a hyperdynamic state with a pulse of 200. Renal vein thrombosis causes a renal mass associated with hematuria, anemia, and thrombocytopenia.

Ritchey ML, Shamberger RC: Pediatric urologic oncology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 130, pp 3871-3872.